



Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, CA 93455

Telephone: 805-934-8200

August 22, 2014

Mr. Jared Blumenfeld  
Regional Administrator  
EPA, Region 9  
NPDES/DMR, WTR-7  
75 Hawthorne Street  
San Francisco, CA 94105-3901

Re: Discharge Monitoring Report - Platform Hermosa NPDES Permit CAG280000

Dear Mr. Blumenfeld:

This letter and its attachments represent the Discharge Monitoring Report (DMR) for the months of May, June, and July 2014 for Platform Hermosa.

Included herein are the following attachments:

Attachment 1 is comprised of the EPA DMR forms 3320-1.

Attachment 2 is a listing of the chemical inventory for miscellaneous discharges (specifically non-contact cooling and fire water) as required by II.F. of the subject permit.

Attachment 3 are the undissociated sulfide conversion calculation tables in accordance with II.B.1.a. of the permit.

Attachment 4 provides required pre-dilution and post-dilution chlorine results for non-contact cooling and fire water discharges in accordance with Appendix C of the permit.

Attachment 5 summarizes miscellaneous sampling results for extra testing we initiated. These results are included since the results were derived by an EPA approved test method, in accordance with Part III.D. of the permit.

Attachment 6 includes copies of the official state certified lab reports for O & G and miscellaneous NPDES monitoring. Also included are the laboratory quality control reports for the lab reports, Chronic Whole Effluent Toxicity (WET) Testing performed in

Dear Mr. Blumenfeld  
August 22, 2014  
Page 2 of 3

May on red abalone, giant kelp, and topsmelt and other required information (MLs, MDLs, EPA Methods, chains-of-custody, sample dates, etc.).

The following is a brief summary of some of the monitoring and reporting parameters affecting the various discharges

**Produced Water (Discharge 002):**

A dilution ratio of 2086:1 was derived using the average flow rate from the previous quarter, as defined in Part V of the permit. This dilution was applied to the quarterly testing results and the numeric values reported in the DMR are post dilution values for comparison to the permit limits listed in the permit under Appendix B.

**Well Treatment, Completion and Workover Fluids (Discharge 003):**

There were no well treatment, completion and workover fluid jobs performed during this quarter.

**Sanitary and Domestic Waste (Discharge 005):**

The required annual Marine Sanitation Device (MSD) inspection was completed on June 24. The inspection included a chlorine test to ensure proper operation and chlorine results are included in the DMR. The MSD is in good condition and operating properly. A full inspection report is available upon request.

**Non-Contact Cooling Water and Fire Water (Discharge 008 and 009):**

Small amounts of chlorine are used to prevent internal bio-fouling within the piping in the non-contact cooling water and fire water systems on the platform. Attachment 4 summarizes the official quarterly chlorine result including post dilution and end of pipe results.

The quarterly testing results and the numeric values for chlorine reported in the DMR are post dilution values for comparison to the permit limits listed in Appendix C of the NPDES permit.

The majority of the fire water that is discharged occurs during short fire water pump tests. Separate EPA Plumes UM dilution models were run on the fire water and the non-contact cooling water systems and have been applied to the post dilution values reported in the DMR.

Dear Mr. Blumenfeld  
August 22, 2014  
Page 3 of 3

FM O&G uses an independent contractor to collect NPDES compliance monitoring samples at our offshore platforms. EPA sampling, preservation and documentation protocol is a strict requirement of our monitoring program.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. & 1001 and 33 U.S.C. & 1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years)

If you should have any questions or require additional information, please contact me at (805) 934-8220.

Sincerely,



David Rose  
Manager, Environmental, Health & Safety

Attachment(s)

cc: Ms. Susan Zaleski, Bureau of Ocean Energy Management  
Ms. Alison Dettmer, California Coastal Commission  
Mr. James Salmons, Bureau of Safety Environmental Enforcement  
Platform Hermosa Foremen

**Platform Hermosa**

**Attachment 1**

**EPA DMR  
PERMIT NO. CAG280000**

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**WELL DISCHARGE MONITORING REPORT (Well DMR)**

CAG280000  
PERMIT NO.

001  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From:	14	05	01	To:	14 07 31

**DRILLING FLUIDS AND DRILL CUTTINGS (001)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type		
		Average	Maximum	Units	Minimum	Average	Maximum	Units					
<b>DRILLING FLUIDS VOLUME</b>													
Well # N / A	Sample Measurement		No Discharge	Barrels/ Well									
May	Permit Requirement		Report						1/well 1/day	Estimate			
Well # N / A	Sample Measurement		No Discharge	Barrels/ Well									
June	Permit Requirement		Report						1/well 1/day	Estimate			
Well # N / A	Sample Measurement		No Discharge	Barrels/ Well									
July	Permit Requirement		Report						1/well 1/day	Estimate			
Well # N / A	Sample Measurement		0	Barrels/ Quarter					0				
Quarterly Total	Permit Requirement		Report										
05/01/14 - 07/31/14													
<b>Annual Cumulative Volume Limit</b>	Sample Measurement		0	Barrels/ Year					0				
03/01/14 - 02/28/15	Permit Requirement		41,000										
	Sample Measurement			Barrels/ Year									
	Permit Requirement												
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 28 U.S.C. § 1315. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)						TELEPHONE		DATE			
David Rose Manager, Environmental, Health and Safety										(805) 934-8220		08 22 2014	
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT						Area Code		MONTH/DAY/YEAR			

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

<sup>1</sup> Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

**WELL DISCHARGE MONITORING REPORT (Well DMR)**

CAG280000  
PERMIT NO.

001  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015


**PLATFORM HERMOSA**

LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From:	14	05	To:	14	07

**DRILLING FLUIDS AND DRILL CUTTINGS (001)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units			
<b>DRILL CUTTINGS VOLUME</b>	Sample Measurement		No Discharge	Barrels/ Month							
Well # N / A	Permit Requirement		Report							1/well 1/day	Estimate Grab
May											
<b>DRILL CUTTINGS VOLUME</b>	Sample Measurement		No Discharge	Barrels/ Month							
Well # N / A	Permit Requirement		Report							1/well 1/day	Estimate Grab
June											
<b>DRILL CUTTINGS VOLUME</b>	Sample Measurement		No Discharge	Barrels/ Month							
Well # N / A	Permit Requirement		Report							1/well 1/day	Estimate Grab
July											
<b>Annual Cumulative Volume Limit</b>	Sample Measurement		0	Barrels/ Year					0		
03/01/14 - 02/28/15	Permit Requirement		11,250								
<b>DRILL FLUIDS/CUTTINGS FREE OIL</b>	Sample Measurement				No Discharge				# Days Sheen Observed		
May	Permit Requirement				Negative Static Sheen Test/Free Oil					1/well 1/day	Visual Visual
<b>DRILL FLUIDS/CUTTINGS FREE OIL</b>	Sample Measurement				No Discharge				# Days Sheen Observed		
June	Permit Requirement				Negative Static Sheen Test/Free Oil					1/well 1/day	Visual Visual
<b>DRILL FLUIDS/CUTTINGS FREE OIL</b>	Sample Measurement				No Discharge				# Days Sheen Observed		
July	Permit Requirement				Negative Static Sheen Test/Free Oil					1/well 1/day	Visual Visual
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)						TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety		(805) 934-8220		08 22 2014							
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT				Area Code		MONTH/DAY/YEAR			

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

<sup>1</sup> Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

**WELL DISCHARGE MONITORING REPORT (Well DMR)**

CAG280000  
PERMIT NO.

001  
DISCHARGE NO.


Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From:	14	05	To:	14	07

**DRILLING FLUIDS AND DRILL CUTTINGS (001)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration		NO. EX.	Frequency Analysis	Sample Type		
		Average	Maximum	Units	Maximum	Units					
<b>DRILLING FLUIDS TOXICITY</b> Well # N / A	Sample Measurement				N / A	% by Volume					
	Permit Requirement				LC50 > 3% SPP			(0-80%) Well Footage	Grab		
<b>DRILLING FLUIDS TOXICITY</b> Well # N / A	Sample Measurement				N / A	% by Volume					
	Permit Requirement				LC50 > 3% SPP			(80-100%) Well Footage	Grab		
<b>BARITE MERCURY</b>	Sample Measurement				N / A	mg / kg					
	Permit Requirement				1 mg / kg			Stock Barite	Grab		
<b>BARITE CADMIUM</b>	Sample Measurement				N / A	mg / kg					
	Permit Requirement				3 mg / kg			Stock Barite	Grab		
<b>DRILL FLUIDS CHEMICAL INVENTORY</b> Well # N / A					N / A						
					Report			Each Mud System			
<b>No. DAYS DISCHARGE FOR EACH DRILLING FLUID</b>					N / A						
					Report			# Days Each			
<b>PROHIBITED DISCHARGE</b> 1. Oil-based Fluids 2. Diesel Oil 3. Non-aqueous based drilling fluids or cuttings					N / A			N/A			
					No Discharge			N/A			
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		<small>I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. &amp; 1001 AND 32 U.S.C. &amp; 1518. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)</small>						TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety								(805) 934-8220		08 22 2014	
								Area Code		MONTH/DAY/YEAR	
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT				Area Code		MONTH/DAY/YEAR			

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

N / A: No discharge of drilling fluids

Freeport-McMoRan Oil & Gas  
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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

002  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**PRODUCED WATER (002)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type										
		Average	Maximum	Units	Minimum	Average	Maximum	Units													
<b>PRODUCED WATER FLOW RATE</b>	Sample Measurement	44,596		Monthly Average bbl/Day					0	1/day	Estimate										
	Permit Requirement									1/day	Estimate										
May	Sample Measurement	45,304		Monthly Average bbl/Day					0	1/day	Estimate										
	Permit Requirement									1/day	Estimate										
June	Sample Measurement	44,034		Monthly Average bbl/Day					0	1/day	Estimate										
	Permit Requirement									1/day	Estimate										
July	Sample Measurement			Monthly Average bbl/Day					0	1/day	Estimate										
	Permit Requirement									1/day	Estimate										
<b>QUARTERLY AVERAGE Volume</b>		44,645		Quarterly Average bbl/Day					0	1/quarter	Estimate										
										1/quarter	Estimate										
05/01/14 - 07/31/14	Sample Measurement																				
	Permit Requirement																				
<b>ANNUAL CUMULATIVE Volume</b>	Sample Measurement		7,769,125	Barrels/Year					0	1/quarter	Estimate										
	Permit Requirement		40,250,000																		
03/01/14 - 02/28/15																					
<b>NAME/TITLE PRINCIPAL EXECUTIVE OFFICER</b>		<small>I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1919. PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.</small>						<b>TELEPHONE</b>		<b>DATE</b>											
David Rose Manager, Environmental, Health and Safety																					
<b>TYPED OR PRINTED</b>		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT						Area Code Number		MONTH/DAY/YEAR											
<b>COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)</b>																					

<sup>1</sup> Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.



Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

002  
DISCHARGE NO.

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**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**PRODUCED WATER (002)**  
**Enforceable Limits**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units			
PRODUCED WATER OIL & GREASE <sub>1</sub>	Sample Measurement					8.1	8.8	mg/L	0	1/week	Grab
	Permit Requirement					29.0	42.0			1/week	Grab/Composite
May	Sample Measurement					6.2	9.8	mg/L	0	1/week	Grab
	Permit Requirement					29.0	42.0			1/week	Grab/Composite
June	Sample Measurement					8.9	13.0	mg/L	0	1/week	Grab
	Permit Requirement					29.0	42.0			1/week	Grab/Composite
July	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
	Sample Measurement										
	Permit Requirement										
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 23 U.S.C. § 1315. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)						TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety											
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT						Area Code	Number	MONTH/DAY/YEAR	

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

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MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**PRODUCED WATER (002)**  
**Enforceable Limits**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration			NO. EX.	Frequency Analysis	Sample Type	
		Average	Maximum	Units	Minimum	Average <sub>1</sub>	Maximum <sub>1</sub>				Units
PRODUCED WATER MONTHLY <sub>1</sub> May	Sample Measurement					0.00379	0.00379	mg/L	0	1 / month	Grab
	Permit Requirement					0.0049	0.00577			1 / month	Grab
UNDISSOCIATED SULFIDE	Sample Measurement					0.00247	0.00247	mg/L	0	1 / month	Grab
	Permit Requirement					0.0049	0.00577			1 / month	Grab
June	Sample Measurement					0.00384	0.00384	mg/L	0	1 / month	Grab
	Permit Requirement					0.0049	0.00577			1 / month	Grab
UNDISSOCIATED SULFIDE	Sample Measurement					0.00384	0.00384	mg/L	0	1 / month	Grab
	Permit Requirement					0.0049	0.00577			1 / month	Grab
PRODUCED WATER CONSTITUENTS-QUARTERLY <sub>1</sub> 3-SPECIES TOXICITY	Sample Measurement					P A S S			0	1/quarter	Composite
	Permit Requirement					Pass / Fail				1/quarter	Composite
PRODUCED WATER CONSTITUENTS-ANNUAL <sub>1</sub> COPPER	Sample Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab
	Permit Requirement					N / A	N / A			1 / year	Grab
BENZENE	Sample Measurement					0.00034	0.00034	mg/L	0	1 / year	Grab
	Permit Requirement					N / A	N / A			1 / year	Grab
BENZO(A)ANTHRACENE	Sample Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab
	Permit Requirement					N / A	N / A			1 / year	Grab
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 30 U.S.C. § 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS)						TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety								(805) 934-8220		08 22 2014	
TYPED OR PRINTED								Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT		Area Code	

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

<sup>1</sup> Results are post-dilution, and the limits listed are post-dilution as listed in the new permit, Appendix B.

N / A: There are no limits in the new Permit effective March 1, 2014, Appendix B.

NODI(B): below MDL (laboratory's minimum detection level), the maximum value of all analytical results is less than the laboratory's MDLs.

NODI(Q): equal to or above the MDL, but less than the ML or PQL.

EPA Form 3320-1 (Rev.9-88) Previous editions may be used.

[Replaces EPS Form T-40 which may not be used.]

File:DMR002.xls

Pg 6 of 19

Freeport-McMoRan Oil & Gas  
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Approved Form  
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LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**PRODUCED WATER (002)**  
**Enforceable Limits**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration			NO. EX.	Frequency Analysis	Sample Type											
		Average	Maximum	Units	Minimum	Average	Maximum														
PRODUCED WATER CONSTITUENTS-ANNUAL <sup>1</sup>	Sample Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab										
	Permit Requirement					N / A	N / A			1 / year	Grab										
BENZO(A)PYRENE	Sample Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab										
	Permit Requirement					N / A	N / A			1 / year	Grab										
CHRYSENE	Sample Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab										
	Permit Requirement					N / A	N / A			1 / year	Grab										
BENZO(B)FLUORANTHENE	Sample Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab										
	Permit Requirement					N / A	N / A			1 / year	Grab										
BENZO(K)FLUORANTHENE	Sample Measurement					NODI(B)	NODI(B)	mg/L	0	1 / year	Grab										
	Permit Requirement					N / A	N / A			1 / year	Grab										
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, ON THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 23 U.S.C. § 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS)						TELEPHONE		DATE											
David Rose Manager, Environmental, Health and Safety										(805) 934-8220		08 22 2014									
TYPED OR PRINTED												MONTH/DAY/YEAR									
COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT						Area Code	Number												

<sup>1</sup> Results are post-dilution, and the limits listed are post-dilution as listed in the new permit, Appendix B.

N / A: There are no limits in the new Permit effective March 1, 2014, Appendix B.

NODI(B): below MDL (laboratory's minimum detection level), if the maximum value of all analytical results is less than the laboratory's MDLs.

NODI(Q): equal to or above the MDL, but less than the ML or PQL.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

003  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**WELL TREATMENT, COMPLETION  
AND WORKOVER FLUIDS (003)**

(Injected or commingled with produced water)

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration			NO. EX.	Frequency Analysis	Sample Type			
		Average	Maximum	Units	Minimum	Average	Maximum						
WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS FLOW <sub>1</sub>	Sample Measurement		No Discharge	Barrels / Job									
	Permit Requirement		Report						1 / job	Estimate			
May	Sample Measurement		No Discharge	Barrels / Job									
	Permit Requirement		Report						1 / job	Estimate			
June	Sample Measurement		No Discharge	Barrels / Job									
	Permit Requirement		Report						1 / job	Estimate			
July	Sample Measurement		No Discharge	Barrels / Job									
	Permit Requirement		Report						1 / job	Estimate			
WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS OIL AND GREASE <sub>1</sub>						MONTHLY AVERAGE	DAILY MAXIMUM						
May	Sample Measurement					No Discharge	No Discharge	mg/L					
	Permit Requirement					29.0	42.0		1/job	Grab			
June	Sample Measurement					No Discharge	No Discharge	mg/L					
	Permit Requirement					29.0	42.0		1/job	Grab			
July	Sample Measurement					No Discharge	No Discharge	mg/L					
	Permit Requirement					29.0	42.0		1/job	Grab			
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1019. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)				TELEPHONE		DATE					
David Rose Manager, Environmental, Health and Safety						(805) 934-8220		08 22 2014					
TYPED OR PRINTED						Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT		Area Code Number		MONTH/DAY/YEAR			

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

<sup>1</sup>Well Treatment and Completion & Workover fluids are injected or commingled with produced water and are not discharged separately. Refer to produced water monitoring requirements.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

003  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

PLATFORM HERMOSA  
LOCATION: 34° 27' 15"N, 120° 38' 48"W


MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**WELL TREATMENT, COMPLETION  
AND WORKOVER FLUIDS (003)**

(Injected or commingled with produced water)

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units			
WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS, TYPE AND TOTAL NUMBER OF JOBS	Sample Measurement		0	Barrels / Job							
	Permit Requirement		Report								
WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS, STATIC SHEEN May	Sample Measurement				No Discharge				# Times Sheen Observed	1/discharge	Grab
	Permit Requirement				Negative Static Sheen Test - # Times observed-None						
June	Sample Measurement				No Discharge				# Times Sheen Observed	1/discharge	Grab
	Permit Requirement				Negative Static Sheen Test - # Times observed-None						
July	Sample Measurement				No Discharge				# Times Sheen Observed	1/discharge	Grab
	Permit Requirement				Negative Static Sheen Test - # Times observed-None						
	Sample Measurement										
	Permit Requirement										
WELL TREATMENT, COMPLETION AND WORKOVER FLUIDS Chemical Inventory May - July	Sample Measurement				N / A					1/job	Report
	Permit Requirement				Report						
	Sample Measurement										
	Permit Requirement										

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER  David Rose Manager, Environmental, Health and Safety	<small>I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. (SEE 18 U.S.C. § 1001 AND 23 U.S.C. § 1519. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)</small>		TELEPHONE	DATE
			(805) 934-8220	08 22 2014
TYPED OR PRINTED	Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT	Area Code	Number	MONTH/DAY/YEAR

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

<sup>1</sup>Well Treatment and Completion & Workover fluids are injected or commingled with produced water and are not discharged separately. Refer to produced water monitoring requirements.

N / A: No WTCF this quarter.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

004  
DISCHARGE NO.


Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**DECK DRAINAGE (004)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading		Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type
		Average	Units	Minimum	Average	Maximum	Units			
<b>DECK DRAINAGE VOLUME-FLOW RATE</b>	Sample Measurement	23.4	Mo. Avg. bbl/day					0	1/month	Estimate
	Permit Requirement	Report							1/month	Estimate
May										
June	Sample Measurement	39.8	Mo. Avg. bbl/day					0	1/month	Estimate
	Permit Requirement	Report							1/month	Estimate
July	Sample Measurement	73.1	Mo. Avg. bbl/day					0	1/month	Estimate
	Permit Requirement	Report							1/month	Estimate
<b>DECK DRAINAGE FREE OIL</b>	Sample Measurement	0	# Days Sheen Observed	No free oil/Visual sheen on the receiving water.				0	1/day	Visual - Daylight
	Permit Requirement	0		No free oil/Visual sheen on the receiving water.					1/day	Visual - Daylight
May										
June	Sample Measurement	0	# Days Sheen Observed	No free oil/Visual sheen on the receiving water.				0	1/day	Visual - Daylight
	Permit Requirement	0		No free oil/Visual sheen on the receiving water.					1/day	Visual - Daylight
July	Sample Measurement	0	# Days Sheen Observed	No free oil/Visual sheen on the receiving water.				0	1/day	Visual - Daylight
	Permit Requirement	0		No free oil/Visual sheen on the receiving water.					1/day	Visual - Daylight
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 5 MONTHS AND 5 YEARS)					TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety							(805) 934-8220		08 22 2014	
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT					Area Code Number		MONTH/DAY/YEAR	

COMMENT AND EXPLANATION OF ANY VIOLATION [Reference all attachments here.]



Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

005  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**SANITARY & DOMESTIC WASTES (005)**  
(Commingled)

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type						
		Average	Maximum	Units	Minimum	Average	Maximum	Units									
<b>SANITARY &amp; DOMESTIC WASTES FLOW RATE</b> (Commingled)	Sample Measurement	30.0		Monthly Average bbl/day					0	1/day	Estimate						
	Permit Requirement	Report								1/month	Estimate						
May	Sample Measurement	34.0		Monthly Average bbl/day					0	1/day	Estimate						
	Permit Requirement	Report								1/month	Estimate						
June	Sample Measurement	34.0		Monthly Average bbl/day					0	1/day	Estimate						
	Permit Requirement	Report								1/month	Estimate						
July	Sample Measurement	34.0		Monthly Average bbl/day					0	1/day	Estimate						
	Permit Requirement	Report								1/month	Estimate						
<b>SANITARY &amp; DOMESTIC WASTES FOAM &amp; FLOATING SOLIDS</b> (Commingled)	Sample Measurement		0	# days observed	No foam or floating solids in the receiving waters.				0	1/day	Visual - Daylight						
	Permit Requirement		0		No foam or floating solids in the receiving waters.					1/day	Visual - Daylight						
May	Sample Measurement		0	# days observed	No foam or floating solids in the receiving waters.				0	1/day	Visual - Daylight						
	Permit Requirement		0		No foam or floating solids in the receiving waters.					1/day	Visual - Daylight						
June	Sample Measurement		0	# days observed	No foam or floating solids in the receiving waters.				0	1/day	Visual - Daylight						
	Permit Requirement		0		No foam or floating solids in the receiving waters.					1/day	Visual - Daylight						
July	Sample Measurement		0	# days observed	No foam or floating solids in the receiving waters.				0	1/day	Visual - Daylight						
	Permit Requirement		0		No foam or floating solids in the receiving waters.					1/day	Visual - Daylight						
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		<small>I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.</small>				TELEPHONE		DATE									
David Rose Manager, Environmental, Health and Safety																	
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT				Area Code		MONTH/DAY/YEAR									
COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)						Number											

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

005  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**SANITARY & DOMESTIC WASTES (005)**  
(Commingled)

NOTE: Read instructions before completing this form

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type										
		Average	Maximum	Units	Minimum	Average	Maximum	Units													
<b>DOMESTIC WASTE, VOLUME / FOAM</b> (commingled with Sanitary) <sub>1</sub>	Sample Measurement				N / A			# of Days Observed													
	Permit Requirement				No foam or floating solids in the receiving water.					1 / day	Visual - Daylight										
May	Sample Measurement				N / A			# of Days Observed													
	Permit Requirement				No foam or floating solids in the receiving water.					1 / day	Visual - Daylight										
June	Sample Measurement				N / A			# of Days Observed													
	Permit Requirement				No foam or floating solids in the receiving water.					1 / day	Visual - Daylight										
July	Sample Measurement				N / A			# of Days Observed													
	Permit Requirement				No foam or floating solids in the receiving water.					1 / day	Visual - Daylight										
<b>SANITARY / DOMESTIC WASTE RESIDUAL CHLORINE</b> <sub>2</sub>	Sample Measurement				N / A	N / A	N / A	mg/l	0	Monthly	Grab										
	Permit Requirement				1 mg/l	N / A	10 mg/l			Monthly	Grab										
May	Sample Measurement				4.2*	N / A	4.2*	mg/l	0	Monthly	Grab										
	Permit Requirement				1 mg/l	N / A	10 mg/l			Monthly	Grab										
June	Sample Measurement				N / A	N / A	N / A	mg/l	0	Monthly	Grab										
	Permit Requirement				1 mg/l	N / A	10 mg/l			Monthly	Grab										
July	Sample Measurement				N / A	N / A	N / A	mg/l	0	Monthly	Grab										
	Permit Requirement				1 mg/l	N / A	10 mg/l			Monthly	Grab										
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 23 U.S.C. § 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)						TELEPHONE		DATE											
David Rose Manager, Environmental, Health and Safety										(805) 934-8220		08 22 2014									
TYPED OR PRINTED										Area Code		MONTH/DAY/YEAR									
		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT								Number											

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

<sup>1</sup> Reported with sanitary discharges.

<sup>2</sup> The sewage treatment unit is a marine sanitation device that complies with pollution control standards and regulations under Section 312 of the Clean Water Act. Thus, it is deemed to be in compliance with permit limitations for sanitary waste discharges (as per Condition II.E.1 Footnote 2 of CAG280000)

\* The chlorine residual result reported in June was taken as part of the annual Marine Sanitation Device (MSD) inspection.



Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

008  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**FIRE CONTROL WATER (008)**  
(deluge commingled with deck drains)

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading		Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type						
		Average	Units	Minimum	Average	Maximum	Units									
FIRE CONTROL SYSTEM TEST WATER (008) - FOAM, FLOATING SOLIDS <sup>1</sup> (deluge commingled with deck drains) May	Sample Measurement	0	# Days Observed	No floating solids in the receiving water.				0	1/day	Visual - Daylight						
	Permit Requirement	0		No foam in the receiving water.					1/day	Visual - Daylight						
	Sample Measurement	0		No floating solids in the receiving water.					1/day	Visual - Daylight						
June	Sample Measurement	0	# Days Observed	No floating solids in the receiving water.				0	1/day	Visual - Daylight						
	Permit Requirement	0		No foam in the receiving water.					1/day	Visual - Daylight						
	Sample Measurement	0		No floating solids in the receiving water.					1/day	Visual - Daylight						
July	Sample Measurement	0	# Days Observed	No floating solids in the receiving water.				0	1/day	Visual - Daylight						
	Permit Requirement	0		No foam in the receiving water.					1/day	Visual - Daylight						
	Sample Measurement	0		No floating solids in the receiving water.					1/day	Visual - Daylight						
FIRE CONTROL SYSTEM TEST WATER (008) CHLORINE <sup>12</sup> May - July	Sample Measurement				Monthly Average	Daily Maximum	mg/l									
	Permit Requirement				0.0010	0.0010		0	1/quarter	Grab						
	Sample Measurement				0.00595	0.00953			1/quarter	Grab						
FIRE CONTROL SYSTEM TEST WATER Chemical Inventory May - July	Sample Measurement			See Attachment #2 (Chemical Inventory)												
	Permit Requirement			Report												
	Sample Measurement															
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED, BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 19 U.S.C. § 1001 AND 25 U.S.C. § 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS)					TELEPHONE		DATE							
David Rose Manager, Environmental, Health and Safety								(805) 934-8220		08 22 2014						
TYPED OR PRINTED								Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT		Area Code Number MONTH/DAY/YEAR						

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

<sup>1</sup> Fire control system test water is infrequent and uses the same source water and treatment as non-contact cooling water.

<sup>2</sup> Chlorine values reported above are post-dilution per EPA Plumes UM. Chlorine limits are post-dilution as listed in the new permit, Appendix C.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

009  
DISCHARGE NO.


Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**NON-CONTACT COOLING WATER (009)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading		Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type
		Average	Units	Minimum	Average	Maximum	Units			
<b>NON-CONTACT COOLING WATER (009) - FLOW VOLUME</b>	Sample Measurement	111,429	Barrels/Day					0	1/month	Estimate
	Permit Requirement	Report							1/month	Estimate
May	Sample Measurement	111,429	Barrels/Day					0	1/month	Estimate
	Permit Requirement	Report							1/month	Estimate
June	Sample Measurement	111,429	Barrels/Day					0	1/month	Estimate
	Permit Requirement	Report							1/month	Estimate
July	Sample Measurement	111,429	Barrels/Day					0	1/month	Estimate
	Permit Requirement	Report							1/month	Estimate
<b>NON-CONTACT COOLING WATER (009) - FOAM FLOATING SOLIDS</b>	Sample Measurement	0	# Days Observed	No floating solids in the receiving water.				0	1/day	Visual - Daylight
	Permit Requirement	0		No floating solids in the receiving water.					1/day	Visual - Daylight
May	Sample Measurement	0	# Days Observed	No floating solids in the receiving water.				0	1/day	Visual - Daylight
	Permit Requirement	0		No floating solids in the receiving water.					1/day	Visual - Daylight
June	Sample Measurement	0	# Days Observed	No floating solids in the receiving water.				0	1/day	Visual - Daylight
	Permit Requirement	0		No floating solids in the receiving water.					1/day	Visual - Daylight
July	Sample Measurement	0	# Days Observed	No floating solids in the receiving water.				0	1/day	Visual - Daylight
	Permit Requirement	0		No floating solids in the receiving water.					1/day	Visual - Daylight
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. 1001 AND 22 U.S.C. 1219. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)					TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety							(805) 934-8220		08 22 2014	
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT					Area Code Number		MONTH/DAY/YEAR	

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

009  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**NON-CONTACT COOLING WATER (009)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading		Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type							
		Average	Units	Minimum	Monthly Average	Daily Maximum	Units										
NON-CONTACT COOLING WATER (009) - CHLORINE <sub>1</sub>	Sample Measurement				0.0021	0.0021	mg/l	0	1/year	Grab							
	Permit Requirement				N / A	N / A			1/year	Grab							
July																	
NON-CONTACT COOLING WATER (009) CHEMICAL INVENTORY May - July	Sample Measurement			See Attachment #2 (Chemical inventory)				0	1/month	List							
	Permit Requirement			Report					1/month	List							
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)					TELEPHONE		DATE								
David Rose Manager, Environmental, Health and Safety									08 22 2014								
TYPED OR PRINTED									MONTH/DAY/YEAR								
COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT					Area Code	Number									

<sup>1</sup> Chlorine values reported above are post-dilution per EPA Plumes UM.

N / A: There are no limits in the new Permit effective March 1, 2014, Appendix C.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

019  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**EXCESS CEMENT SLURRY (019)**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading		Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type	
		Average	Units	Minimum	Average	Maximum	Units				
EXCESS CEMENT SLURRY (019) FLOW VOLUME	Sample Measurement	No Discharge	Monthly Average*								
May	Permit Requirement	Report	bbl/day						1/month	Estimate	
June	Sample Measurement	No Discharge	Monthly Average*						1/month	Estimate	
	Permit Requirement	Report	bbl/day						1/month	Estimate	
July	Sample Measurement	No Discharge	Monthly Average*						1/month	Estimate	
	Permit Requirement	Report	bbl/day						1/month	Estimate	
ANNUAL CUMULATIVE VOLUME , 03/01/14 - 02/28/15	Sample Measurement	0	Barrels/ Year					0			
	Permit Requirement	2,000									
EXCESS CEMENT SLURRY (019) SHEEN TEST/FREE OIL FOAM, FLOATING SOLIDS	Sample Measurement	No Discharge	# Days Sheen Observed	No Discharge No foam or floating solids No Oil					1/well 1/day	Visual Rec. Water	
May	Permit Requirement	None							1/well 1/day	Visual Rec. Water	
June	Sample Measurement	No Discharge	# Days Sheen Observed	No Discharge No foam or floating solids No Oil					1/well 1/day	Visual Rec. Water	
	Permit Requirement	None							1/well 1/day	Visual Rec. Water	
July	Sample Measurement	No Discharge	# Days Sheen Observed	No Discharge No foam or floating solids No Oil					1/well 1/day	Visual Rec. Water	
	Permit Requirement	None							1/well 1/day	Visual Rec. Water	
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		<small>CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 23 U.S.C. § 1015 (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 5 MONTHS AND 5 YEARS)</small>						TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety								(805) 934-8220		08 22 2014	
TYPED OR PRINTED								Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT		Area Code Number MONTH/DAY/YEAR	

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

\* Annual cumulative volume limit is applied to the cumulative volumes for the period of March 2014 through February 2015.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

Approved Form  
OMB No. 2000-0015

CAG280000	008.007.010.011.012.013.014
PERMIT NO.	DISCHARGE NO.

Blowout Preventer Fluids  
Desalination Unit  
Ballast/Storage Displacement  
Bilge Water  
Boiler Blowdown  
Test Fluids  
Diatomaceous Earth Filter Media

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type
		Average	Maximum	Units	Minimum	Average	Maximum	Units			
(006) Blowout Preventer Fluids FREE OIL, FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement				<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
(007) Desalination Unit FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement				No floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.				0	1/month 1/discharge	Visual Rec. Water
(010) Ballast/Storage Displacement Water - FLOW RATE FREE OIL, FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement	No Discharge		Monthly Average bbl/day	<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Estimate / Visual Daylight
(011) Bilge Water FLOW RATE May - July	Sample Measurement Permit Requirement	No Discharge		Monthly Average bbl/day	<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Estimate
(012) Boiler Blowdown FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement				<b>No Discharge</b> No floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
(013) Test Fluids * FLOW RATE FREE OIL, FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement	No Discharge		Monthly Average bbl/day	<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Estimate / Visual Daylight
(014) Diatomaceous Earth Filter Media FREE OIL, FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement				<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)					TELEPHONE		DATE		
David Rose Manager, Environmental, Health and Safety							(805) 934-8220		08 22 2014		
TYPED OR PRINTED							Area Code Number		MONTH/DAY/YEAR		

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

\* See Attachment 2 for Chemical Inventory, if discharged.



Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

Approved Form  
OMB No. 2000-0015

CAG280000  
PERMIT NO.

015, 016, 017, 018, 020, 021  
DISCHARGE NO.

Bulk Water Transfer Overflow  
Uncontaminated Water  
Water Flooding Discharges  
Laboratory Wastes (commingled with produced water)  
Muds, Cuttings, Cement at Sea Floor  
Hydrotest Water

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading		(4 card only) Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type
		Average	Units	Minimum	Average	Maximum	Units			
(015) Bulk Transfer Water Overflow FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement			<b>No Discharge</b> No floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
(016) Uncontaminated Water FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement			<b>No Discharge</b> No floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
(017) Water Flooding Discharges FREE OIL, FOAM, FLOATING SOLIDS* May - July	Sample Measurement Permit Requirement			<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
(018) Laboratory Wastes FREE OIL, FOAM, FLOATING SOLIDS (commingled with produced water) May - July	Sample Measurement Permit Requirement			N / A (refer to produced water requirements) No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
(020) Muds, Cuttings, Cement at Sea FLOOR FREE OIL, FOAM, FLOATING SOLIDS May - July	Sample Measurement Permit Requirement			<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Visual Rec. Water
(021) Hydrotest Water * FLOW RATE /FREE OIL, FOAM FLOATING SOLIDS May - July	Sample Measurement Permit Requirement	No Discharge Report	Monthly Average bbl/day	<b>No Discharge</b> No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/month 1/discharge	Estimate / Visual Daylight
(021) Hydrotest Water CHLORINE May - July	Sample Measurement Permit Requirement				No Discharge * 7.5	No Discharge * 13	ug/L		1/month 1/discharge	Grab
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 52 U.S.C. § 13118. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 5 MONTHS AND 5 YEARS)				TELEPHONE		DATE		
David Rose Manager, Environmental, Health and Safety						(805) 934-8220		08 22 2014		
TYPED OR PRINTED						Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT		Area Code Number		MONTH/DAY/YEAR

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

\* See Attachment 2 for Chemical Inventory, if discharged.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
**DISCHARGE MONITORING REPORT (DMR)**

CAG280000  
PERMIT NO.

022  
DISCHARGE NO.

Approved Form  
OMB No. 2000-0015

**PLATFORM HERMOSA**  
LOCATION: 34° 27' 15"N, 120° 38' 48"W

MONITORING PERIOD					
YR	MO	DAY	YR	MO	DAY
From: 14 05 01			To: 14 07 31		

**H2S Gas Processing Waste Water**

NOTE: Read instructions before completing this form.

PARAMETER		Quantity or Loading			Quality or Concentration				NO. EX.	Frequency Analysis	Sample Type	
		Average	Maximum	Units	Minimum	Average	Maximum	Units				
(022) H2S Gas Processing Waste Water FLOW RATE	Sample Measurement	No Discharge		Monthly Average bbl/day								
May - July	Permit Requirement	Report								1/discharge	Estimate	
(022) H2S Gas Processing Waste Water FREE OIL, FOAM, FLOATING SOLIDS	Sample Measurement				No Discharge							
May - July	Permit Requirement				No free oil or floating solids in the receiving water. No foam, in other than trace amounts, in the receiving water.					1/discharge	Visual - Daylight	
Surfactants, Detergents, Dispersants	Sample Measurement				Minimized				0			
	Permit Requirement				Minimize							
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED, BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 5 MONTHS AND 5 YEARS.)							TELEPHONE		DATE	
David Rose Manager, Environmental, Health and Safety												
TYPED OR PRINTED		Signature of PRINCIPAL EXECUTIVE OFFICER or AUTHORIZED AGENT							Area Code Number		MONTH/DAY/YEAR	

COMMENT AND EXPLANATION OF ANY VIOLATION (Reference all attachments here.)

# **Attachment 2**

## **Chemical Inventory**



**ATTACHMENT 2**  
**PLATFORM HERMOSA**  
**MISCELLANEOUS DISCHARGES**  
**CHEMICAL INVENTORY**  
**May 1, 2014 through July 31, 2014**

<u>Fluid Type</u>	<u>Volume</u> (Monthly avg bbls per day)	<u>Product Name</u>	<u>Estimated Chemical Quantity</u> <sub>2</sub> (Monthly avg gal per day)	<u>Average End-of-Pipe Concentration</u> (mg/l)
009 Non-contact Cooling Water		Chlorine		
May	111,429		0.94	0.20
June	111,429		1.59	0.34
July	111,429		1.08	0.23
008 Fire Control System Water <sub>1</sub>		Chlorine		
May	416		0.004	0.22
June	513		0.005	0.21
July	379		0.004	0.28
013 Test Fluids	No Discharge	No Discharge	None	None
017 Water Flooding Discharges	No Discharge	No Discharge	None	None
021 Hydrotest Water	No Discharge	No Discharge	None	None

<sup>1</sup> Firewater volumes are estimated based on one 30 minute test approximately every 4 days (refer to cover letter).

<sup>2</sup> End-of-pipe concentration and chemical quantity calculated with Operations daily monitoring results using a non-EPA chlorine test method (Hach DPD Color Wheel). This method is not an official EPA test method, but using this data better represents the chemical inventory values from month to month since the official EPA test method is required only quarterly.

## **Attachment 3**

# **Non-Contact Cooling Water / Fire Water Chlorine Residual Results**

## Platform Hermosa- Percent Undissociated sulfides (H<sub>2</sub>S) vs Total Sulfide:

DMR Quarter: May - July 2014

### Standard Methods 19th Edition 1995, page 4-129

Enter Temperature as Kelvin where Temp K= Temp C+273.15 (automatic conversion at the bottom of this page).

May			Calculation As fresh water		Calculation As ocean water		Calculation as Produced water
Ocean pH	8.1	Permit	A	0.501	A	-0.115	A -0.138
Produced Water pH	7	Historical					
Produced Water Temp.	354.26 k						
Ocean Water Temp	288.15 k		pfm	0.059	B	0.00959	B 0.00983
Total Sulfides (Std. Mthd. 4500 S-2F)	138 mg/l	6-May-14	I	0.02	I	0.82	I 1.0
Dilution *	2086	Qtr. Avg.	St	4.3125E-03 mole	S	30	S 27 Dec.04
Conductivity (produced water)	61500	Historical	pK	7.11	pK'	6.77	pK 6.66
"I" (produced water)	1.0		K'	1.01E-07	K'	1.70E-07	K 2.19E-07
Conductivity (ocean water)	51200	13-May-14	[H]	2.04E-07	[H]	1.03E-08	[H] 1.26E-07
"I" (ocean water)	0.82		[H <sub>2</sub> S]	2.88E-03 mole	[H <sub>2</sub> S]	2.47E-04 mole	[H <sub>2</sub> S] 1.58E-03
			H <sub>2</sub> S as S	92.15 mg/L	H <sub>2</sub> S as S	7.90 mg/L	H <sub>2</sub> S as S 50.42 mg/L
					pfm	0.115	pfm 0.102
% H <sub>2</sub> S:						5.72%	36.54%
Conc. as H <sub>2</sub> S (undissociated)						7.90 mg/l	50.42 mg/l
H <sub>2</sub> S Post Dilution:						0.0038 mg/l	0.0242 mg/l
H <sub>2</sub> S Post Dilution (ug/l):						3.787 ug/l	24.170 ug/l

#### Conditions:

\* Dilution calculated from quarterly average flow rate from the previous DMR quarter (per the Permit) and the outfall configuration for this reporting quarter.

Ocean water pH:8.1, salinity 30 g/kg as listed in the General NPDES permit. Produced water Temperature, pH and conductivity based on averages.

I = 1.6x10<sup>-5</sup> Conductivity (Stand.Methods 19th Edition, page 2-31).

Ocean water conditions for pH, Temp, Salinity, and conductivity will dominate over those for produced water at the edge of the 100m mixing zone.

pK' (under ocean water) uses pK (7.11 as freshwater) in the PK' calculation which also includes standard ocean conditions (for pH, Salinity, Temp).

#### Temperature conversion:

C = 5/9 (F-32)	Temp F	Temp	Temp. K
Produced Water:	178	81.11	354.26
Ocean Water:	59	15.00	288.15

## Platform Hermosa- Percent Undissociated sulfides (H<sub>2</sub>S) vs Total Sulfide:

**DMR Quarter: May - July 2014**

**Standard Methods 19th Edition 1995, page 4-129**

Enter Temperature as Kelvin where Temp K= Temp C+273.15 (automatic conversion at the bottom of this page).

June			Calculation As fresh water		Calculation As ocean water		Calculation as Produced water	
Ocean pH	8.1	Permit	A	0.501	A	-0.115	A	-0.138
Produced Water pH	7	Historical						
Produced Water Temp.	353.71 k							
Ocean Water Temp	288.15 k		pfm	0.059	B	0.00959	B	0.00983
Total Sulfides (Std. Mthd. 4500 S-2F)	90 mg/l	6-Jun-14	I	0.02	I	0.82	I	1.0
Dilution *	2086	Qtr. Avg.	St	2.8125E-03 mole	S	30	S	27 Dec.04
Conductivity (produced water)	61500	Historical	pK	7.11	pK'	6.77	pK	6.66
"I" (produced water)	1.0		K'	1.01E-07	K'	1.70E-07	K	2.19E-07
Conductivity (ocean water)	51400	12-Jun-14	[H]	2.04E-07	[H]	1.03E-08	[H]	1.26E-07
"I" (ocean water)	0.82		[H <sub>2</sub> S]	1.88E-03 mole	[H <sub>2</sub> S]	1.61E-04 mole	[H <sub>2</sub> S]	1.03E-03
			H <sub>2</sub> S as S	60.10 mg/L	H <sub>2</sub> S as S	5.15 mg/L	H <sub>2</sub> S as S	32.92 mg/L
					pfm	0.115	pfm	0.102
% H <sub>2</sub> S:						5.72%		36.58%
Conc. as H <sub>2</sub> S (undissociated)						5.15 mg/l		32.92 mg/l
H <sub>2</sub> S Post Dilution:						0.0025 mg/l		0.0158 mg/l
H <sub>2</sub> S Post Dilution (ug/l):						2.469 ug/l		15.781 ug/l

### Conditions:

\* Dilution calculated from quarterly average flow rate from the previous DMR quarter (per the Permit) and the outfall configuration for this reporting quarter.

Ocean water pH:8.1, salinity 30 g/kg as listed in the General NPDES permit. Produced water Temperature, pH and conductivity based on averages.

I = 1.6x10<sup>-5</sup> Conductivity (Stand.Methods 19th Edition, page 2-31).

Ocean water conditions for pH, Temp, Salinity, and conductivity will dominate over those for produced water at the edge of the 100m mixing zone.

pK' (under ocean water) uses pK (7.11 as freshwater) in the PK' calculation which also includes standard ocean conditions (for pH, Salinity, Temp).

### Temperature conversion:

C = 5/9 (F-32)	Temp F	Temp	Temp. K
Produced Water:	177	80.56	353.71
Ocean Water:	59	15.00	288.15

## Platform Hermosa- Percent Undissociated sulfides (H<sub>2</sub>S) vs Total Sulfide:

DMR Quarter: May - July 2014

**Standard Methods 19th Edition 1995, page 4-129**

Enter Temperature as Kelvin where Temp K= Temp C+273.15 (automatic conversion at the bottom of this page).

July			Calculation As fresh water		Calculation As ocean water		Calculation as Produced water	
Ocean pH	8.1	Permit	A	0.501	A	-0.115	A	-0.138
Produced Water pH	7	Historical						
Produced Water Temp.	353.71 k							
Ocean Water Temp	288.15 k		pfm	0.059	B	0.00959	B	0.00983
Total Sulfides (Std. Mthd. 4500 S-2F)	140 mg/l	2-Jul-14	I	0.02	I	0.82	I	1.0
Dilution *	2088	Qtr. Avg.	St	4.3750E-03 mole	S	30	S	27 Dec.04
Conductivity (produced water)	61500	Historical	pK	7.11	pK'	6.77	pK	6.66
"I" (produced water)	1.0		K'	1.01E-07	K'	1.70E-07	K	2.19E-07
Conductivity (ocean water)	51500	9-Jul-14	[H]	2.04E-07	[H]	1.03E-08	[H]	1.26E-07
"I" (ocean water)	0.82		[H <sub>2</sub> S]	2.92E-03 mole	[H <sub>2</sub> S]	2.50E-04 mole	[H <sub>2</sub> S]	1.60E-03
			H <sub>2</sub> S as S	93.49 mg/L	H <sub>2</sub> S as S	8.01 mg/L	H <sub>2</sub> S as S	51.21 mg/L
					pfm	0.115	pfm	0.102
% H <sub>2</sub> S:						5.72%		36.58%
Conc. as H <sub>2</sub> S (undissociated)						8.01 mg/l		51.21 mg/l
H <sub>2</sub> S Post Dilution:						0.0038 mg/l		0.0245 mg/l
H <sub>2</sub> S Post Dilution (ug/l):						3.839 ug/l		24.549 ug/l

### Conditions:

\* Dilution calculated from quarterly average flow rate from the previous DMR quarter (per the Permit) and the outfall configuration for this reporting quarter.

Ocean water pH:8.1, salinity 30 g/kg as listed in the General NPDES permit. Produced water Temperature, pH and conductivity based on averages.

I = 1.6x10<sup>-5</sup> Conductivity (Stand.Methods 19th Edition, page 2-31).

Ocean water conditions for pH, Temp, Salinity, and conductivity will dominate over those for produced water at the edge of the 100m mixing zone.

pK' (under ocean water) uses pK (7.11 as freshwater) in the PK' calculation which also includes standard ocean conditions (for pH, Salinity, Temp).

### Temperature conversion:

C = 5/9 (F-32)	Temp F	Temp	Temp. K
Produced Water:	177	80.66	353.71
Ocean Water:	59	15.00	288.15

## **Attachment 4**

# **Non-Contact Cooling Water / Fire Water Chlorine Residual Results**



## LTS ENVIRONMENTAL, INC.

Freeport-McMoRan Oil and Gas  
201 S. Broadway  
Orcutt, Ca 93455

July 24, 2014

**Attn: David Rose**

As part of the Annual Marine Sanitation Device (MSD) Inspection, and to ensure proper operation of the device, LTS Environmental performed an EPA-approved chlorine residual on the effluent. Results of this test are as follows:

<b>Date/Time</b>	<b>Location</b>	<b>Total Chlorine Residual</b> <i>(EPA Method 330.5)</i>
June 24, 2014 @ 0800 hrs	Platform Hermosa	
	Sewage Effluent	
	Omnipure 12MX	4.2 mg/l
	Method Blank	< 0.05 mg/l (MDL)

LTS Technician: Mike Apple

**S.G. Lawry**  
**Environmental Specialist / LTS**



## LTS ENVIRONMENTAL, INC.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

July 25, 2014

Attn: Ruth Juris

Annual NPDES chlorine residuals on the non-contact cooling water outlet is as follows:

Sample Date / Time	Location	Total Chlorine Residual (EPA Method 330.5) <u>End of Pipe</u>
	Platform Hermosa	
July 23, 2014 @ 1130 hrs	Non-Contact Cooling Water Outlet	0.36 mg/l
LTS Meter S/N: 12040E195572		
Technician: Mike Apple		Method Blank < 0.05 mg/l

S.G. Lawry  
*Environmental Specialist / LTS*





## LTS ENVIRONMENTAL, INC.

Freeport-McMoRan Oil & Gas  
201 S. Broadway  
Orcutt, Ca 93455

May 28, 2014

Attn: Ruth Juris

Quarterly NPDES chlorine residual on the fire water outlet is as follows:

Sample Date / Time	Location	Total Chlorine Residual (EPA Method 330.5) <u>End of Pipe</u>
May 13, 2014 @ 510 hrs	Platform Hermosa Firewater Outlet	0.16 mg/l
LTS Meter S/N: 12040E195572 Technician: Mike Apple		Method Blank < 0.05 mg/l (MDL)

**S.G. Lawry**  
*Environmental Specialist / LTS*



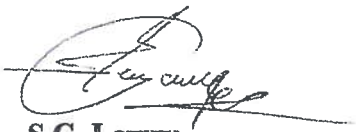
## LTS ENVIRONMENTAL, INC.

August 13, 2013

### Quality Control

As part of the annual in-house quality control chlorine meter check and to ensure proper operation of the meters, LTS Environmental performed a total residual chlorine test with a known value obtained from RT Corporation. Results of this test are as follows:

<b>Test Date</b> August 12, 2013	<b>Total Residual Chlorine</b> <i>(EPA Method 330.5)</i>
LTS meter (SN 041200088375)	<b>2.78 mg/l</b>
LTS meter (SN 12040E195572)	<b>2.74 mg/l</b>
RT Corporation test sample:	
Certified Value	2.35 mg/l (+/-0.0508)
Standard Deviation	0.208 mg/l
<b>Acceptance Limits</b>	<b>1.73 – 2.98 mg/l</b>
	Method Blank < 0.05 mg/l
LTS Lead Technician: Mike Apple	



**S.G. Lawry**  
**Environmental Specialist**  
**President, LTS**

## **Attachment 5**

### **Miscellaneous NPDES Monitoring**

**ATTACHMENT 5  
PLATFORM HERMOSA  
MISCELLANEOUS MONITORING  
May 1, 2014 through July 31, 2014**

<u>Sample Location</u>	<u>Sample Date</u>	<u>Constituents</u>	<u>EPA Method</u>	<u>Lab Value</u>	<u>Units</u>
Ocean Water at Fire Water Pumps	5/13/2014	Specific Conductivity	120.1	51,200	unhos/cm
	6/12/2014	Specific Conductivity	120.1	51,400	unhos/cm
	7/9/2014	Specific Conductivity	120.1	51,500	unhos/cm

Specific Conductivity results were used in sulfide conversion calculations.

## **Attachment 6**

### **Laboratory Reports**

### **Laboratory Quality Control Reports**



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

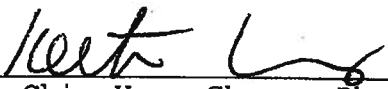
**Report Date:** May 13, 2014  
**Laboratory Number:** 141211  
**Project Name:** PF Hermosa Weekly NPDES  
**Sampled by:** Client

On May 8, 2014, Capco Analytical Services, Inc. (CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141211-01
UNICEL OUT	141211-02*
UNICEL OUT	141211-03*
UNICEL OUT	141211-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**CERTIFICATE OF ANALYSIS**

Client: Freeport McMoran O&G (PF Hermosa)  
CAS LAB NO: 141211  
Analyst: GM

Date Sampled: 05/06/14  
Date Received: 05/08/14  
Date Analyzed: 05/12/14  
Sample Matrix: Water

**OIL & GREASE ANALYSIS  
EPA METHOD 1664**

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141211-01	Unicel Out	7.8	1	1	5

**QUALITY CONTROL DATA**

141211-MB	Method Blank	ND	1	1	5
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141211

## Chain of Custody

<b>LTS Environmental, Inc.</b> <b>704 Adirondack Avenue</b> <b>Ventura, CA 93003</b> <b>805-644-4560</b>	<b>Report to: FM O&amp;G c/o S. Lawry</b>	<b>Bill to: Accounts Payable</b> <b>700 Milam Ste 3100</b> <b>Houston, TX, 77002</b>
---	---	--

FACILITY: Hermosa  
 COLLECTOR: LTS  
 PROJECT/CHARGE #: Weekly NPDES  
 RESULTS REQUIRED: Normal  
 RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services  
 REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway,  
Orcutt, CA 93455  
Ruth Juris

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unice/out	grab	1	Date: 5-6-14 Time: 1915	Hr1	EPA 1664 Abs (11) IRC (12)
2		grab	1	1930		
3		grab	1	1945		
4		grab	1	2000		

Comments: Run #1. Hold rest.

Relinquished by: [Signature] Date: 5-8-14  
 Received by: [Signature] Time: 1200

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_





Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry


**Report Date:** May 16, 2014  
**Laboratory Number:** 141260  
**Project Name:** PF Hermosa wk(2) NPDES Weekly  
**Sampled by:** Client

On May 13, 2014, Capco Analytical Services, Inc. (CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141260-01
UNICEL OUT	141260-02*
UNICEL OUT	141260-03*
UNICEL OUT	141260-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoran O&G (PF Hermosa)  
CAS LAB NO: 141260  
Analyst: GM

Date Sampled: 05/12/14  
Date Received: 05/13/14  
Date Analyzed: 05/13/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141260-01	Unicel Out	8.6	1	1	5

### QUALITY CONTROL DATA

141260-MB	Method Blank	ND	1	1	5
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## Chain of Custody

141260

<b>LTS Environmental, Inc.</b> 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	<b>Report to:</b> FM O&G c/o S. Lawry	<b>Bill to:</b> Accounts Payable 700 Milam Ste 3100 Houston, TX, 77002
--	---------------------------------------	--

FACILITY: Hermosa wk(2) NPDES  
COLLECTOR: LTS  
PROJECT/CHARGE #: Weekly NPDES  
RESULTS REQUIRED: Normal  
RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services  
REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway,  
Orcutt, CA 93455  
Ruth Juris

5/21 5/22

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unicel out	grab	1	Date: 5/12/14 Time: 900	HCI	EPA 1664 Abs (08) IR (09)
2		grab	1	1000-930		
3		grab	1	1000-1000		
4		grab	1	1100-1030		

Comments: Run #1. Hold the rest

Relinquished by: [Signature] Date: 5-13-14  
Received by: \_\_\_\_\_ Time: 1545

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** May 28, 2014  
**Laboratory Number:** 141327  
**Project Name:** PF Hermosa wk(3) NPDES  
**Sampled by:** Client

On May 22, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141327-01
UNICEL OUT	141327-02*
UNICEL OUT	141327-03*
UNICEL OUT	141327-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoran O&G (PF Hermosa)  
CAS LAB NO: 141327  
Analyst: GM

Date Sampled: 05/20/14  
Date Received: 05/22/14  
Date Analyzed: 05/27/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141327-01	Unicel Out	8.8	1	1	5

### QUALITY CONTROL DATA

141327-MB	Method Blank	ND	1	1	5
-----------	--------------	----	---	---	---

## Chain of Custody

<b>LTS Environmental, Inc.</b> <b>704 Adirondack Avenue</b> <b>Ventura, CA 93003</b> <b>805-644-4560</b>	<b>Report to: FM O&amp;G c/o S. Lawry</b> <div style="text-align: center; font-size: 1.5em; font-weight: bold;">14 1 32 7</div>	<b>Bill to: Accounts Payable</b> <b>700 Milam Ste 3100</b> <b>Houston, TX, 77002</b>
---	--	--

FACILITY: Hermosa wk(3) NPDES  
 COLLECTOR: LTS  
 PROJECT/CHARGE #: Weekly NPDES  
 RESULTS REQUIRED: Normal  
 RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services  
 REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway,  
Orcutt, CA 93455  
Ruth Juris

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unicel out	grab	1	Date: 5/20/14 Time: 1545	HCI	EPA 1664 Abs (11) IR (12)
2		grab	1	1600		
3		grab	1	1615		
4		grab	1	1630		

Comments: Run #1, Hold rest.

Relinquished by: [Signature] Date: 5-20-14  
 Received by: \_\_\_\_\_ Time: 9:50

Relinquished by: [Signature] Date: 5/22/14  
 Received by: \_\_\_\_\_ Time: 10:00

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** June 5, 2014

**Laboratory Number:** 141404

**Project Name:** PF Hermosa NPDES Produced Water weekly

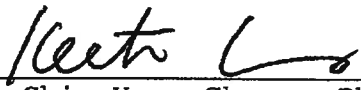
**Sampled by:** Client

On May 30, 2014, Capco Analytical Services, Inc. (CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
PRODUCED WATER	141404-01
PRODUCED WATER	141404-02*
PRODUCED WATER	141404-03*
PRODUCED WATER	141404-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)  
CAS LAB NO: 141404  
Analyst: GM

Date Sampled: 05/29/14  
Date Received: 05/30/14  
Date Analyzed: 06/04/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141404-01	Produced Water	7.1	1	1	5

### QUALITY CONTROL DATA

141404-MB	Method Blank	ND	1	1	5
-----------	--------------	----	---	---	---



141404

<b>LTS ENVIRONMENTAL, INC.</b> 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	<b>Report to: FM O&amp;G c/o Steve Lawry</b>	<b>Bill to: FM O&amp;G</b> Accounts Payable 700 Milam Ste 3100 Houston, TX, 77002 <div style="text-align: right; font-size: 1.5em;">6/6 6/9</div>
--	--	---

FACILITY: P1, Hormosa  
 COLLECTOR: LTS / C. Jenkins  
 PROJECT/CHARGE #: NPDES Produced Water Weekly  
 RESULTS REQUIRED: Standard  
 RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical  
 REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 COPIES TO: Platform Supervisor FAX: \_\_\_\_\_  
201 S. Broadway PHONE: 644-4560  
Orcutt, CA 93455  
 cc: Ruth Juris

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRE-SERV.	ANALYSES REQUESTED (METHOD)
1	Produced water	Grab	1	05/29/14 0615	HCl	O&G (EPA 1664) <u>Run</u>
2				0645		<u>Hold</u>
3				0715		<u>Hold</u>
4				045		<u>Hold</u>

Comments: Run #1; Hold 2-4      #1: Abs (0+6); 1: 09 (L12); 2: 09 (L12)

Relinquished by: Cole Mub Young Date: 5/30/14  
 Received by: [Signature] Time: 1300

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_



June 2, 2014

Freeport McMoRan O&G  
Attn: Ruth Juris  
201 S. Broadway  
Orcutt, CA 93455

Dear Ms. Juris:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA/600/R-95-136, 1995* "All acceptability criteria were met. This is a valid test." Results were as follows:

CLIENT:	Freeport McMoRan O&G
SAMPLE I.D.:	Produced Water Discharge (Platform Hermosa)
DATE RECEIVED:	13 May - 14
ABC LAB. NO.:	LTS0514.176

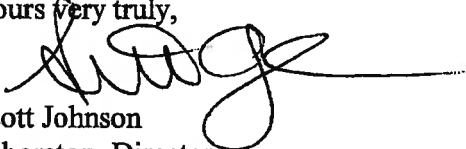
#### **CHRONIC TOPSMELT SURVIVAL & GROWTH BIOASSAY**

IWC CONCENTRATION = 0.0478%

#### **TST RESULT**

SURVIVAL	PASS
GROWTH	PASS

Yours very truly,

  
Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 29 May-14 10:40 (p 1 of 2)

Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 01-0869-5721	Test Type: Growth-Survival (7d)	Analyst:
Start Date: 14 May-14 14:00	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Seawater
Ending Date: 21 May-14 12:00	Species: Atherinops affinis	Brine: Not Applicable
Duration: 6d 22h	Source: Aquatic Biosystems, CO	Age:
Sample ID: 07-5919-5927	Code: LTS0514.176tops	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 32h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

## Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
21-4679-5770	7d Survival Rate	0.0717	>0.0717	NA	8.76%	1395	Steel Many-One Rank Sum Test
00-0866-3942	Mean Dry Biomass-mg	0.0717	>0.0717	NA	23.7%	1395	Steel Many-One Rank Sum Test

## Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
07-2375-7638	7d Survival Rate	EC5	>0.0717	N/A	N/A	<1395	Linear Interpolation (ICPIN)
		EC10	>0.0717	N/A	N/A	<1395	
		EC15	>0.0717	N/A	N/A	<1395	
		EC20	>0.0717	N/A	N/A	<1395	
		EC25	>0.0717	N/A	N/A	<1395	
		EC40	>0.0717	N/A	N/A	<1395	
		EC50	>0.0717	N/A	N/A	<1395	
14-0271-4260	Mean Dry Biomass-mg	IC5	>0.0717	N/A	N/A	<1395	Linear Interpolation (ICPIN)
		IC10	>0.0717	N/A	N/A	<1395	
		IC15	>0.0717	N/A	N/A	<1395	
		IC20	>0.0717	N/A	N/A	<1395	
		IC25	>0.0717	N/A	N/A	<1395	
		IC40	>0.0717	N/A	N/A	<1395	
		IC50	>0.0717	N/A	N/A	<1395	

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
07-2375-7638	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
21-4679-5770	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
00-0866-3942	Mean Dry Biomass-mg	Control Resp	1.06	0.85 - NL	Yes	Passes Acceptability Criteria
14-0271-4260	Mean Dry Biomass-mg	Control Resp	1.06	0.85 - NL	Yes	Passes Acceptability Criteria
21-4679-5770	7d Survival Rate	PMSD	0.08762	NL - 0.25	No	Passes Acceptability Criteria
00-0866-3942	Mean Dry Biomass-mg	PMSD	0.2369	NL - 0.5	No	Passes Acceptability Criteria

## 7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	0	0	0.0%	0.0%
0.0239		5	1	1	1	1	1	0	0	0.0%	0.0%
0.0478		5	0.96	0.8489	1	0.8	1	0.04	0.08944	9.32%	4.0%
0.0717		5	1	1	1	1	1	0	0	0.0%	0.0%

## Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1.06	0.8509	1.268	0.78	1.174	0.07516	0.1681	15.86%	0.0%
0.0239		5	1.171	1.006	1.336	0.936	1.248	0.05952	0.1331	11.37%	-10.49%
0.0478		5	1.11	0.848	1.371	0.766	1.266	0.09422	0.2107	18.99%	-4.72%
0.0717		5	1.13	0.8923	1.368	0.832	1.332	0.08561	0.1914	16.94%	-6.64%

# CETIS Summary Report

Report Date: 29 May-14 10:40 (p 2 of 2)

Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
0.0239		1	1	1	1	1
0.0478		1	1	1	1	0.8
0.0717		1	1	1	1	1

### Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.148	1.024	1.172	0.78	1.174
0.0239		1.248	1.238	0.936	1.192	1.24
0.0478		1.196	1.266	1.054	1.266	0.766
0.0717		1.066	0.832	1.332	1.216	1.204

### 7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	5/5	5/5	5/5	5/5	5/5
0.0239		5/5	5/5	5/5	5/5	5/5
0.0478		5/5	5/5	5/5	5/5	4/5
0.0717		5/5	5/5	5/5	5/5	5/5

# CETIS Analytical Report

Report Date: 29 May-14 10:40 (p 1 of 4)

Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 21-4679-5770	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.7
Analyzed: 29 May-14 10:39	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Sample ID: 07-5919-5927	Code: LTS0514.176tops	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 32h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	8.76%	0.0717	>0.0717	NA	1395

## Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		0.0239	27.5	17	1	8	0.7500	Asymp	Non-Significant Effect
		0.0478	25	17	1	8	0.5314	Asymp	Non-Significant Effect
		0.0717	27.5	17	1	8	0.7500	Asymp	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.008506184	0.002835395	3	1	0.4182	Non-Significant Effect
Error	0.04536632	0.002835395	16			
Total	0.0538725		19			

## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	5.953	0.4262	Equal Variances
Variances	Levene Equality of Variance	7.111	5.292	0.0030	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.4969	0.866	<0.0001	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.45	0.2235	<0.0001	Non-normal Distribution
Distribution	D'Agostino Skewness	4.576	2.576	<0.0001	Non-normal Distribution
Distribution	D'Agostino Kurtosis	4.175	2.576	<0.0001	Non-normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	38.38	9.21	<0.0001	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	4.585	3.878	<0.0001	Non-normal Distribution

## 7d Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	1	0	0.0%	0.0%
0.0239		5	1	1	1	1	1	1	0	0.0%	0.0%
0.0478		5	0.96	0.8489	1	1	0.8	1	0.04	9.32%	4.0%
0.0717		5	1	1	1	1	1	1	0	0.0%	0.0%

## Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
0.0239		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
0.0478		5	1.298	1.165	1.43	1.345	1.107	1.345	0.04763	8.21%	3.54%
0.0717		5	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%

## 7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
0.0239		1	1	1	1	1
0.0478		1	1	1	1	0.8
0.0717		1	1	1	1	1

**Report Date:** 29 May-14 10:40 (p 2 of 4)  
**Test Code:** LTS0514.176tops | 07-3725-3313

**Test Code:** LTS0514.176tops | 07-3725-3313

**Aquatic Bioassay & Consulting Labs, Inc.**

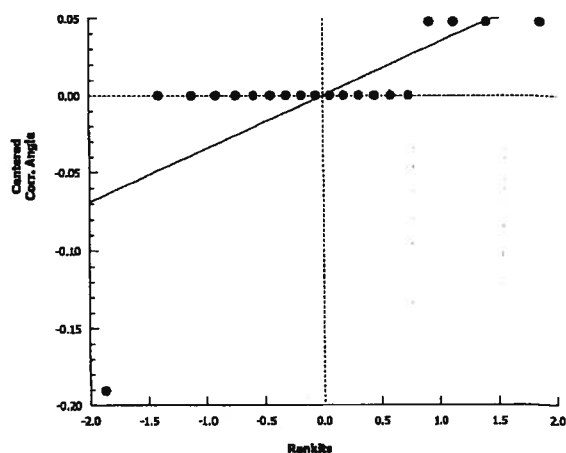
**CETIS Version:** CETISv1.8.7

**Official Results: Yes**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.345	1.345	1.345	1.345	1.345
0.0239		1.345	1.345	1.345	1.345	1.345
0.0478		1.345	1.345	1.345	1.345	1.107
0.0717		1.345	1.345	1.345	1.345	1.345

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	5/5	5/5	5/5	5/5	5/5
0.0239		5/5	5/5	5/5	5/5	5/5
0.0478		5/5	5/5	5/5	5/5	4/5
0.0717		5/5	5/5	5/5	5/5	5/5

C-%	7d Survival Rate
0 H	0.95
0.0239	0.95
0.0478	0.93
0.0717	0.95



# CETIS Analytical Report

Report Date: 29 May-14 10:40 (p 3 of 4)  
Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-0866-3942	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.7
Analyzed: 29 May-14 10:39	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Sample ID: 07-5919-5927	Code: LTS0514.176tops	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 32h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	23.7%	0.0717	>0.0717	NA	1395

## Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		0.0239	36	17	0	8	0.9968	Asymp	Non-Significant Effect
		0.0478	32	17	0	8	0.9606	Asymp	Non-Significant Effect
		0.0717	33	17	0	8	0.9773	Asymp	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.03205979	0.0106866	3	0.3366	0.7991	Non-Significant Effect
Error	0.5079393	0.0317462	16			
Total	0.5399991		19			

## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	0.8036	11.34	0.8486	Equal Variances
Variances	Mod Levene Equality of Variance	0.2411	5.953	0.8660	Equal Variances
Variances	Levene Equality of Variance	0.4231	5.292	0.7390	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.845	0.866	0.0044	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.2595	0.2235	0.0010	Non-normal Distribution
Distribution	D'Agostino Skewness	2.047	2.576	0.0407	Normal Distribution
Distribution	D'Agostino Kurtosis	0.1726	2.576	0.8630	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	4.219	9.21	0.1213	Normal Distribution
Distribution	Anderson-Darling A2 Normality	1.53	3.878	<0.0001	Non-normal Distribution

## Mean Dry Biomass-mg Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	1.06	0.8509	1.268	1.148	0.78	1.174	0.07516	15.86%	0.0%
0.0239		5	1.171	1.006	1.336	1.238	0.936	1.248	0.05952	11.37%	-10.49%
0.0478		5	1.11	0.848	1.371	1.196	0.766	1.266	0.09422	18.99%	-4.72%
0.0717		5	1.13	0.8923	1.368	1.204	0.832	1.332	0.08561	16.94%	-6.64%

## Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.148	1.024	1.172	0.78	1.174
0.0239		1.248	1.238	0.936	1.192	1.24
0.0478		1.196	1.266	1.054	1.266	0.766
0.0717		1.066	0.832	1.332	1.216	1.204

CETIS Analytical Report

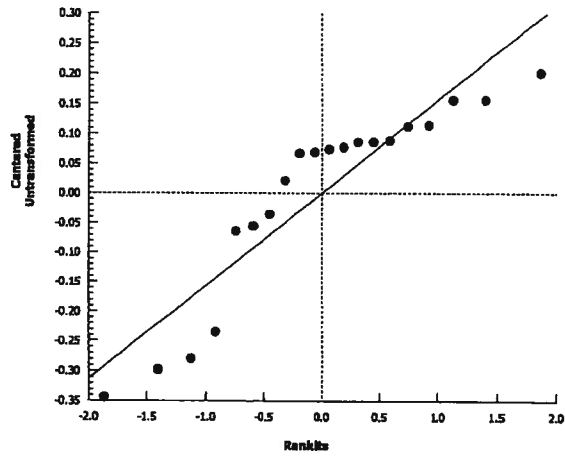
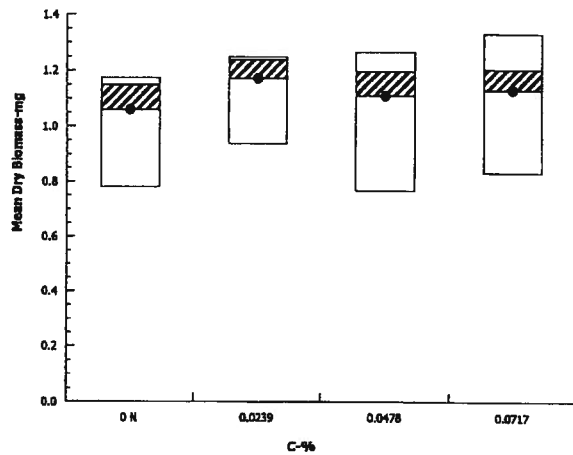
Report Date: 29 May-14 10:40 (p 4 of 4)  
Test Code: LTS0514.176tops | 07-3725-3313

Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-0866-3942      Endpoint: Mean Dry Biomass-mg      CETIS Version: CETISv1.8.7  
Analyzed: 29 May-14 10:39      Analysis: Nonparametric-Control vs Treatments      Official Results: Yes

Graphics





# CETIS Analytical Report

Report Date: 29 May-14 10:40 (p 1 of 3)  
Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-2375-7638	Endpoint: 7d Survival Rate	CETIS Version: CETISv1.8.7
Analyzed: 29 May-14 10:40	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Sample ID: 07-5919-5927	Code: LTS0514.176tops	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 32h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

## Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

## Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>0.0717	N/A	N/A	<1395	NA	NA
EC10	>0.0717	N/A	N/A	<1395	NA	NA
EC15	>0.0717	N/A	N/A	<1395	NA	NA
EC20	>0.0717	N/A	N/A	<1395	NA	NA
EC25	>0.0717	N/A	N/A	<1395	NA	NA
EC40	>0.0717	N/A	N/A	<1395	NA	NA
EC50	>0.0717	N/A	N/A	<1395	NA	NA

## 7d Survival Rate Summary

### Calculated Variate(A/B)

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	5	1	1	1	0	0	0.0%	0.0%	25	25
0.0239		5	1	1	1	0	0	0.0%	0.0%	25	25
0.0478		5	0.96	0.8	1	0.04	0.08944	9.32%	4.0%	24	25
0.0717		5	1	1	1	0	0	0.0%	0.0%	25	25

## 7d Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
0.0239		1	1	1	1	1
0.0478		1	1	1	1	0.8
0.0717		1	1	1	1	1

## 7d Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	5/5	5/5	5/5	5/5	5/5
0.0239		5/5	5/5	5/5	5/5	5/5
0.0478		5/5	5/5	5/5	5/5	4/5
0.0717		5/5	5/5	5/5	5/5	5/5

# CETIS Analytical Report

Report Date: 29 May-14 10:40 (p 2 of 3)

Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 07-2375-7638

Endpoint: 7d Survival Rate

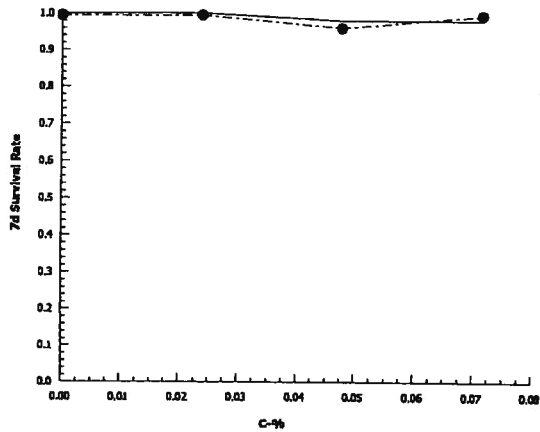
CETIS Version: CETISv1.8.7

Analyzed: 29 May-14 10:40

Analysis: Linear Interpolation (ICPIN)

Official Results: Yes

### Graphics



# CETIS Analytical Report

Report Date: 29 May-14 10:40 (p 3 of 3)  
Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 14-0271-4260	Endpoint: Mean Dry Biomass-mg	CETIS Version: CETISv1.8.7
Analyzed: 29 May-14 10:39	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Sample ID: 07-5919-5927	Code: LTS0514.176tops	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 32h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1864755	280	Yes	Two-Point Interpolation

### Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	>0.0717	N/A	N/A	<1395	NA	NA
IC10	>0.0717	N/A	N/A	<1395	NA	NA
IC15	>0.0717	N/A	N/A	<1395	NA	NA
IC20	>0.0717	N/A	N/A	<1395	NA	NA
IC25	>0.0717	N/A	N/A	<1395	NA	NA
IC40	>0.0717	N/A	N/A	<1395	NA	NA
IC50	>0.0717	N/A	N/A	<1395	NA	NA

### Mean Dry Biomass-mg Summary

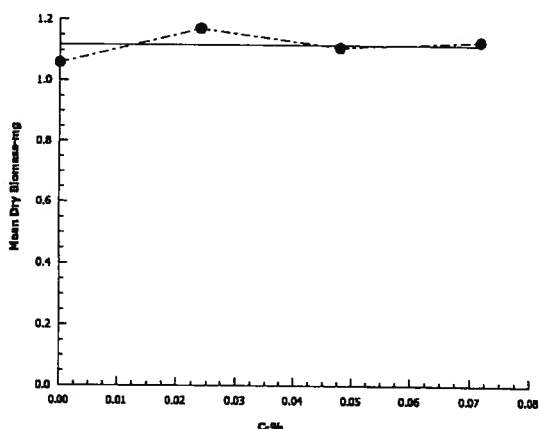
#### Calculated Variate

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1.06	0.78	1.174	0.07516	0.1681	15.86%	0.0%
0.0239		5	1.171	0.936	1.248	0.05952	0.1331	11.37%	-10.49%
0.0478		5	1.11	0.766	1.266	0.09422	0.2107	18.99%	-4.72%
0.0717		5	1.13	0.832	1.332	0.08561	0.1914	16.94%	-6.64%

### Mean Dry Biomass-mg Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.148	1.024	1.172	0.78	1.174
0.0239		1.248	1.238	0.936	1.192	1.24
0.0478		1.196	1.266	1.054	1.266	0.766
0.0717		1.066	0.832	1.332	1.216	1.204

### Graphics



# CETIS Measurement Report

Report Date: 29 May-14 10:40 (p 1 of 2)  
Test Code: LTS0514.176tops | 07-3725-3313

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	01-0669-5721	Test Type:	Growth-Survival (7d)	Analyst:	
Start Date:	14 May-14 14:00	Protocol:	EPA/600/R-95/136 (1995)	Diluent:	Laboratory Seawater
Ending Date:	21 May-14 12:00	Species:	Atherinops affinis	Brine:	Not Applicable
Duration:	6d 22h	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	07-5919-5927	Code:	LTS0514.176tops	Client:	LTS Environmental, Inc.
Sample Date:	13 May-14 06:00	Material:	Sample Water	Project:	Platform Hermosa
Receive Date:	13 May-14 15:25	Source:	Bioassay Report		
Sample Age:	32h (1.6 °C)	Station:	Produced Water Discharge (Platform Herm)		

## Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	6.063	5.725	6.4	5.4	6.5	0.1426	0.4033	6.65%	0
0.0239		8	6.163	5.88	6.445	5.5	6.5	0.1194	0.3378	5.48%	0
0.0478		8	6.138	5.838	6.437	5.5	6.7	0.1267	0.3583	5.84%	0
0.0717		8	6.213	5.954	6.471	5.6	6.7	0.1093	0.3091	4.98%	0
Overall		32	6.144			5.4	6.7				0 (0%)

## pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	7.525	7.451	7.599	7.4	7.6	0.03134	0.08864	1.18%	0
0.0239		8	7.588	7.534	7.641	7.5	7.7	0.02266	0.06409	0.84%	0
0.0478		8	7.563	7.5	7.625	7.5	7.7	0.0263	0.0744	0.98%	0
0.0717		8	7.588	7.534	7.641	7.5	7.7	0.02266	0.06409	0.84%	0
Overall		32	7.566			7.4	7.7				0 (0%)

## Salinity-ppt

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	34	34	34	34	34	0	0	0.0%	0
0.0239		8	34	34	34	34	34	0	0	0.0%	0
0.0478		8	34	34	34	34	34	0	0	0.0%	0
0.0717		8	34	34	34	34	34	0	0	0.0%	0
Overall		32	34			34	34				0 (0%)

## Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	8	21	21	21	21	21	0	0	0.0%	0
0.0239		8	21	21	21	21	21	0	0	0.0%	0
0.0478		8	21	21	21	21	21	0	0	0.0%	0
0.0717		8	21	21	21	21	21	0	0	0.0%	0
Overall		32	21			21	21				0 (0%)

**CETIS Measurement Report**

Report Date: 29 May-14 10:40 (p 2 of 2)

Test Code: LTS0514.176tops | 07-3725-3313

**Pacific Topsmelt 7-d Survival and Growth Test**

Aquatic Bioassay &amp; Consulting Labs, Inc.

**Dissolved Oxygen-mg/L**

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	6.4	6.3	6.1	6.1	6.5	6.2	5.4	5.5
0.0239		6.3	6.5	6.5	6.1	6.4	6	6	5.5
0.0478		6.3	6.7	6.4	6.1	6.2	6	5.9	5.5
0.0717		6.4	6.7	6.3	6.2	6.2	6.2	6.1	5.6

**pH-Units**

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	7.6	7.5	7.5	7.6	7.6	7.6	7.4	7.4
0.0239		7.6	7.6	7.5	7.6	7.7	7.6	7.6	7.5
0.0478		7.6	7.5	7.5	7.5	7.7	7.6	7.6	7.5
0.0717		7.6	7.6	7.5	7.6	7.7	7.6	7.6	7.5

**Salinity-ppt**

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	34	34	34	34	34	34	34	34
0.0239		34	34	34	34	34	34	34	34
0.0478		34	34	34	34	34	34	34	34
0.0717		34	34	34	34	34	34	34	34

**Temperature-°C**

C-%	Control Type	1	2	3	4	5	6	7	8
0	Negative Contr	21	21	21	21	21	21	21	21
0.0239		21	21	21	21	21	21	21	21
0.0478		21	21	21	21	21	21	21	21
0.0717		21	21	21	21	21	21	21	21

June 2, 2014

Freeport McMoRan O&G  
Attn: Ruth Juris  
201 S. Broadway  
Orcutt, CA 93455

Dear Ms. Juris:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to West Coast Estuarine Organisms*, EPA/R-95/136. "All acceptability criteria were met. This is a valid test." Results were as follows:

CLIENT:	Freeport McMoRan O&G
SAMPLE I.D.:	Produced Water Discharge (Platform Hermosa)
DATE RECEIVED:	13 May - 14
ABC LAB. NO.:	LTS0514.176

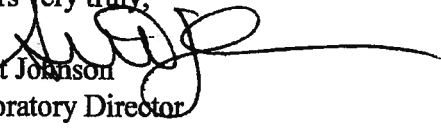
**CHRONIC KELP GERMINATION AND GROWTH BIOASSAY**

IWC CONCENTRATION = 0.0478%

**TST RESULT**

Germination	PASS
Tube Length	PASS

Yours very truly,

  
Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 02 Jun-14 12:11 (p 1 of 2)  
Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	09-6886-5444	Test Type:	Growth-Germination	Analyst:	
Start Date:	14 May-14 16:11	Protocol:	EPA/600/R-95/136 (1995)	Diluent:	Laboratory Seawater
Ending Date:	16 May-14 16:10	Species:	Macrocystis pyrifera	Brine:	Not Applicable
Duration:	48h	Source:	Aquatic Bioassay Labs Collection	Age:	
Sample ID:	05-7455-2604	Code:	LTS0514.176klp	Client:	LTS Environmental, Inc.
Sample Date:	13 May-14 06:00	Material:	Sample Water	Project:	Platform Hermosa
Receive Date:	13 May-14 15:25	Source:	Bioassay Report		
Sample Age:	34h (1.6 °C)	Station:	Produced Water Discharge (Platform Herm)		

## Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
13-5900-2870	Germination Rate	0.717	>0.717	NA	2.51%	139.5	Dunnett Multiple Comparison Test
21-4485-2762	Mean Length	0.717	>0.717	NA	3.42%	139.5	Dunnett Multiple Comparison Test

## Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
17-6488-8532	Germination Rate	EC5	>0.717	N/A	N/A	<139.5	Linear Interpolation (ICPIN)
		EC10	>0.717	N/A	N/A	<139.5	
		EC15	>0.717	N/A	N/A	<139.5	
		EC20	>0.717	N/A	N/A	<139.5	
		EC25	>0.717	N/A	N/A	<139.5	
		EC40	>0.717	N/A	N/A	<139.5	
		EC50	>0.717	N/A	N/A	<139.5	
13-7025-1225	Mean Length	IC5	>0.717	N/A	N/A	<139.5	Linear Interpolation (ICPIN)
		IC10	>0.717	N/A	N/A	<139.5	
		IC15	>0.717	N/A	N/A	<139.5	
		IC20	>0.717	N/A	N/A	<139.5	
		IC25	>0.717	N/A	N/A	<139.5	
		IC40	>0.717	N/A	N/A	<139.5	
		IC50	>0.717	N/A	N/A	<139.5	

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
13-5900-2870	Germination Rate	Control Resp	0.904	0.7 - NL	Yes	Passes Acceptability Criteria
17-6488-8532	Germination Rate	Control Resp	0.904	0.7 - NL	Yes	Passes Acceptability Criteria
13-7025-1225	Mean Length	Control Resp	16	10 - NL	Yes	Passes Acceptability Criteria
21-4485-2762	Mean Length	Control Resp	16	10 - NL	Yes	Passes Acceptability Criteria
13-5900-2870	Germination Rate	PMSD	0.02505	NL - 0.2	No	Passes Acceptability Criteria
21-4485-2762	Mean Length	PMSD	0.03415	NL - 0.2	No	Passes Acceptability Criteria

## Germination Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	0.904	0.8783	0.9297	0.88	0.93	0.009274	0.02074	2.29%	0.0%
0.0239		5	0.906	0.8852	0.9268	0.88	0.92	0.007483	0.01673	1.85%	-0.22%
0.0478		5	0.91	0.9012	0.9188	0.9	0.92	0.003162	0.007071	0.78%	-0.66%
0.717		5	0.9	0.8804	0.9196	0.88	0.92	0.007071	0.01581	1.76%	0.44%

## Mean Length Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	16	15.35	16.65	15.5	16.7	0.2345	0.5244	3.28%	0.0%
0.0239		5	16.14	15.91	16.37	15.9	16.4	0.08124	0.1817	1.13%	-0.88%
0.0478		5	16.12	15.7	16.54	15.8	16.7	0.153	0.3421	2.12%	-0.75%
0.717		5	16.18	15.66	16.7	15.7	16.7	0.1881	0.4207	2.6%	-1.13%

**CETIS Summary Report**Report Date: 02 Jun-14 12:11 (p 2 of 2)  
Test Code: LTS0514.176klp | 02-0630-0531**Macrocystis Germination and Germ Tube Growth Test****Aquatic Bioassay & Consulting Labs, Inc.****Germination Rate Detail**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.92	0.88	0.9	0.89	0.93
0.0239		0.91	0.92	0.9	0.92	0.88
0.0478		0.92	0.91	0.91	0.91	0.9
0.717		0.92	0.88	0.91	0.89	0.9

**Mean Length Detail**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	15.6	15.8	15.5	16.7	16.4
0.0239		16.4	16.1	16.2	16.1	15.9
0.0478		15.8	16	16.1	16	16.7
0.717		16.7	15.7	16.4	15.8	16.3

**Germination Rate Binomials**

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	92/100	88/100	90/100	89/100	93/100
0.0239		91/100	92/100	90/100	92/100	88/100
0.0478		92/100	91/100	91/100	91/100	90/100
0.717		92/100	88/100	91/100	89/100	90/100



# CETIS Analytical Report

Report Date: 02 Jun-14 12:11 (p 1 of 4)

Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-5900-2870	Endpoint: Germination Rate	CETIS Version: CETISv1.8.7
Analyzed: 02 Jun-14 12:10	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Sample ID: 05-7455-2604	Code: LTS0514.176klp	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 34h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	2.51%	0.717	>0.717	NA	139.5

## Dunnett Multiple Comparison Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		0.0239	-0.1684	2.227	0.038	8	0.8062	CDF	Non-Significant Effect
		0.0478	-0.5327	2.227	0.038	8	0.8980	CDF	Non-Significant Effect
		0.717	0.4324	2.227	0.038	8	0.5745	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0007016995	0.0002338998	3	0.3207	0.8103	Non-Significant Effect
Error	0.01167011	0.0007293822	16			
Total	0.01237181		19			

## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.493	11.34	0.3217	Equal Variances
Variances	Mod Levene Equality of Variance	2.662	5.953	0.0955	Equal Variances
Variances	Levene Equality of Variance	2.377	5.292	0.1082	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.976	0.866	0.8731	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1028	0.2235	0.9618	Normal Distribution
Distribution	D'Agostino Skewness	0.09656	2.576	0.9231	Normal Distribution
Distribution	D'Agostino Kurtosis	0.695	2.576	0.4871	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	0.4923	9.21	0.7818	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.2137	3.878	0.8888	Normal Distribution

## Germination Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	0.904	0.8783	0.9297	0.9	0.88	0.93	0.009273	2.29%	0.0%
0.0239		5	0.906	0.8852	0.9268	0.91	0.88	0.92	0.007483	1.85%	-0.22%
0.0478		5	0.91	0.9012	0.9188	0.91	0.9	0.92	0.003162	0.78%	-0.66%
0.717		5	0.9	0.8804	0.9196	0.9	0.88	0.92	0.007071	1.76%	0.44%

## Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	5	1.257	1.213	1.302	1.249	1.217	1.303	0.01597	2.84%	0.0%
0.0239		5	1.26	1.225	1.295	1.266	1.217	1.284	0.01256	2.23%	-0.23%
0.0478		5	1.266	1.251	1.282	1.266	1.249	1.284	0.005534	0.98%	-0.72%
0.717		5	1.25	1.217	1.283	1.249	1.217	1.284	0.01184	2.12%	0.59%

## Germination Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.92	0.88	0.9	0.89	0.93
0.0239		0.91	0.92	0.9	0.92	0.88
0.0478		0.92	0.91	0.91	0.91	0.9
0.717		0.92	0.88	0.91	0.89	0.9

# CETIS Analytical Report

Report Date: 02 Jun-14 12:11 (p 2 of 4)

Test Code: LTS0514.176kip | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-5900-2870

Endpoint: Germination Rate

CETIS Version: CETISv1.8.7

Analyzed: 02 Jun-14 12:10

Analysis: Parametric-Control vs Treatments

Official Results: Yes

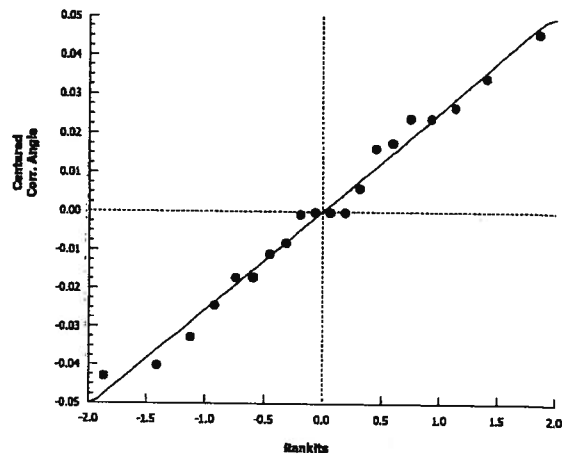
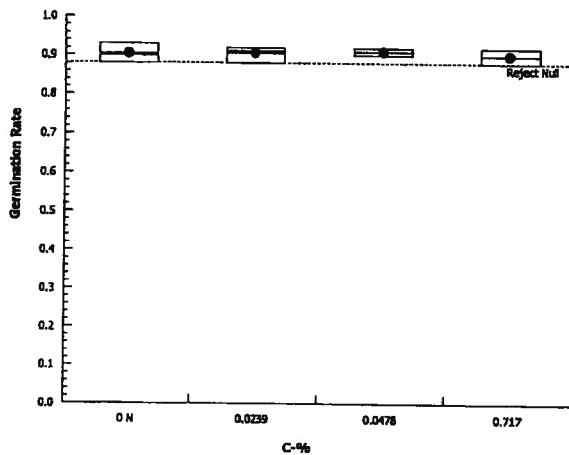
### Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.284	1.217	1.249	1.233	1.303
0.0239		1.266	1.284	1.249	1.284	1.217
0.0478		1.284	1.266	1.266	1.266	1.249
0.717		1.284	1.217	1.266	1.233	1.249

### Germination Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	92/100	88/100	90/100	89/100	93/100
0.0239		91/100	92/100	90/100	92/100	88/100
0.0478		92/100	91/100	91/100	91/100	90/100
0.717		92/100	88/100	91/100	89/100	90/100

### Graphics



# CETIS Analytical Report

Report Date: 02 Jun-14 12:11 (p 3 of 4)

Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 21-4485-2762	Endpoint: Mean Length	CETIS Version: CETISv1.8.7
Analyzed: 02 Jun-14 12:10	Analysis: Parametric-Control vs Treatments	Official Results: Yes
Sample ID: 05-7455-2604	Code: LTS0514.176klp	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 34h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	3.42%	0.717	>0.717	NA	139.5

## Dunnett Multiple Comparison Test

Control	vs C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control	0.0239	-0.5706	2.227	0.546	8	0.9052	CDF	Non-Significant Effect
	0.0478	-0.4891	2.227	0.546	8	0.8891	CDF	Non-Significant Effect
	0.717	-0.7336	2.227	0.546	8	0.9319	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.08999981	0.02999994	3	0.1993	0.8953	Non-Significant Effect
Error	2.408002	0.1505001	16			
Total	2.498002		19			

## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance	3.638	11.34	0.3033	Equal Variances
Variances	Mod Levene Equality of Variance	1.487	5.953	0.2678	Equal Variances
Variances	Levene Equality of Variance	2.947	5.292	0.0645	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9539	0.866	0.4299	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1224	0.2235	0.6292	Normal Distribution
Distribution	D'Agostino Skewness	0.9519	2.576	0.3412	Normal Distribution
Distribution	D'Agostino Kurtosis	0.6633	2.576	0.5072	Normal Distribution
Distribution	D'Agostino-Pearson K2 Omnibus	1.346	9.21	0.5102	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.3262	3.878	0.5379	Normal Distribution

## Mean Length Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	16	15.35	16.65	15.8	15.5	16.7	0.2345	3.28%	0.0%
0.0239		5	16.14	15.91	16.37	16.1	15.9	16.4	0.08125	1.13%	-0.88%
0.0478		5	16.12	15.7	16.54	16	15.8	16.7	0.153	2.12%	-0.75%
0.717		5	16.18	15.66	16.7	16.3	15.7	16.7	0.1881	2.6%	-1.13%

## Mean Length Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	15.6	15.8	15.5	16.7	16.4
0.0239		16.4	16.1	16.2	16.1	15.9
0.0478		15.8	16	16.1	16	16.7
0.717		16.7	15.7	16.4	15.8	16.3

# CETIS Analytical Report

Report Date: 02 Jun-14 12:11 (p 4 of 4)

Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 21-4485-2762

Endpoint: Mean Length

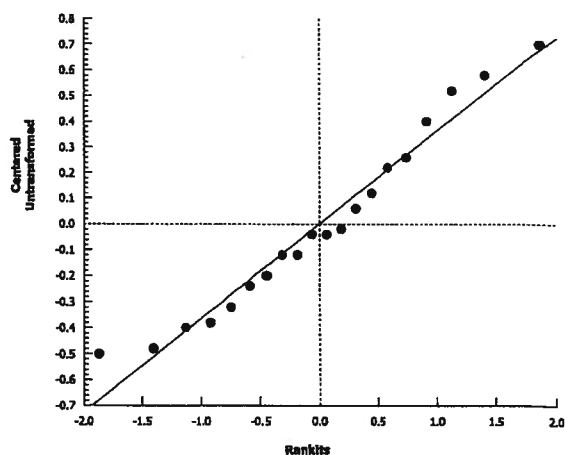
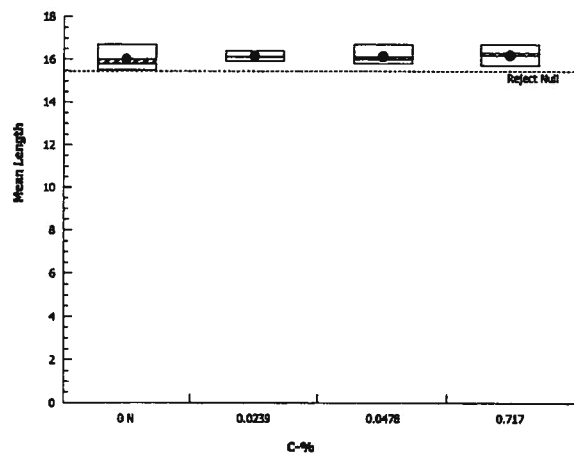
CETIS Version: CETISv1.8.7

Analyzed: 02 Jun-14 12:10

Analysis: Parametric-Control vs Treatments

Official Results: Yes

### Graphics



# CETIS Analytical Report

Report Date: 02 Jun-14 12:11 (p 1 of 3)  
Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-6488-8532	Endpoint: Germination Rate	CETIS Version: CETISv1.8.7
Analyzed: 02 Jun-14 12:10	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Sample ID: 05-7455-2604	Code: LTS0514.176klp	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 34h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

### Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

### Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>0.717	N/A	N/A	<139.5	NA	NA
EC10	>0.717	N/A	N/A	<139.5	NA	NA
EC15	>0.717	N/A	N/A	<139.5	NA	NA
EC20	>0.717	N/A	N/A	<139.5	NA	NA
EC25	>0.717	N/A	N/A	<139.5	NA	NA
EC40	>0.717	N/A	N/A	<139.5	NA	NA
EC50	>0.717	N/A	N/A	<139.5	NA	NA

### Germination Rate Summary

#### Calculated Variate(A/B)

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	5	0.904	0.88	0.93	0.009273	0.02074	2.29%	0.0%	452	500
0.0239		5	0.906	0.88	0.92	0.007483	0.01673	1.85%	-0.22%	453	500
0.0478		5	0.91	0.9	0.92	0.003162	0.00707	0.78%	-0.66%	455	500
0.717		5	0.9	0.88	0.92	0.007071	0.01581	1.76%	0.44%	450	500

### Germination Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	0.92	0.88	0.9	0.89	0.93
0.0239		0.91	0.92	0.9	0.92	0.88
0.0478		0.92	0.91	0.91	0.91	0.9
0.717		0.92	0.88	0.91	0.89	0.9

### Germination Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	92/100	88/100	90/100	89/100	93/100
0.0239		91/100	92/100	90/100	92/100	88/100
0.0478		92/100	91/100	91/100	91/100	90/100
0.717		92/100	88/100	91/100	89/100	90/100

# CETIS Analytical Report

Report Date: 02 Jun-14 12:11 (p 2 of 3)

Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 17-6488-8532

Endpoint: Germination Rate

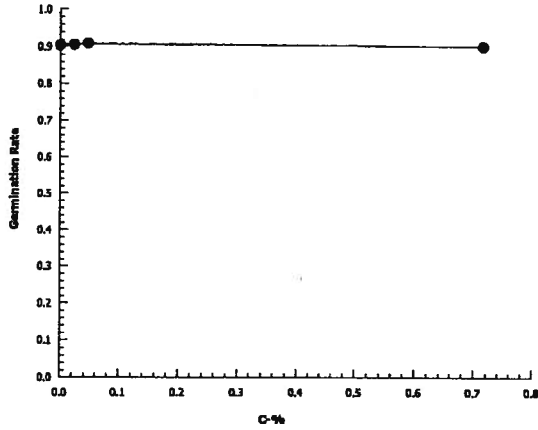
CETIS Version: CETISv1.8.7

Analyzed: 02 Jun-14 12:10

Analysis: Linear Interpolation (ICPIN)

Official Results: Yes

### Graphics



# CETIS Analytical Report

Report Date: 02 Jun-14 12:11 (p 3 of 3)  
Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 13-7025-1225	Endpoint: Mean Length	CETIS Version: CETISv1.8.7
Analyzed: 02 Jun-14 12:10	Analysis: Linear Interpolation (ICPIN)	Official Results: Yes
Sample ID: 05-7455-2604	Code: LTS0514.176klp	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 34h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

## Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1827240	280	Yes	Two-Point Interpolation

## Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	>0.717	N/A	N/A	<139.5	NA	NA
IC10	>0.717	N/A	N/A	<139.5	NA	NA
IC15	>0.717	N/A	N/A	<139.5	NA	NA
IC20	>0.717	N/A	N/A	<139.5	NA	NA
IC25	>0.717	N/A	N/A	<139.5	NA	NA
IC40	>0.717	N/A	N/A	<139.5	NA	NA
IC50	>0.717	N/A	N/A	<139.5	NA	NA

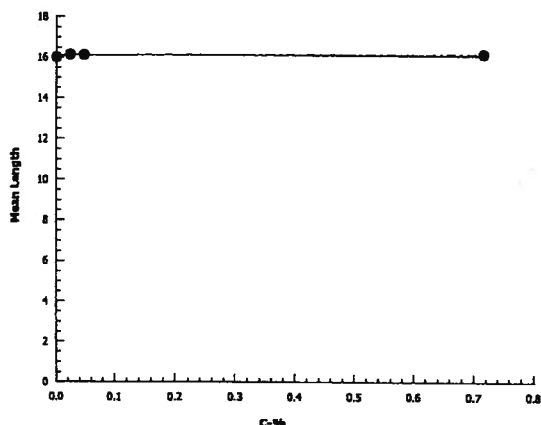
## Mean Length Summary

C-%	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	16	15.5	16.7	0.2345	0.5244	3.28%	0.0%
0.0239		5	16.14	15.9	16.4	0.08125	0.1817	1.13%	-0.88%
0.0478		5	16.12	15.8	16.7	0.153	0.3421	2.12%	-0.75%
0.717		5	16.18	15.7	16.7	0.1881	0.4207	2.6%	-1.13%

## Mean Length Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	15.6	15.8	15.5	16.7	16.4
0.0239		16.4	16.1	16.2	16.1	15.9
0.0478		15.8	16	16.1	16	16.7
0.717		16.7	15.7	16.4	15.8	16.3

## Graphics



# CETIS Measurement Report

Report Date: 02 Jun-14 12:11 (p 1 of 2)  
Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 09-6886-5444  
Start Date: 14 May-14 16:11  
Ending Date: 16 May-14 16:10  
Duration: 48h  
Test Type: Growth-Germination  
Protocol: EPA/600/R-95/136 (1995)  
Species: Macrocystis pyrifera  
Source: Aquatic Bioassay Labs Collection

Analyst:  
Diluent: Laboratory Seawater  
Brine: Not Applicable  
Age:

Sample ID: 05-7455-2604  
Sample Date: 13 May-14 06:00  
Receive Date: 13 May-14 15:25  
Sample Age: 34h (1.6 °C)  
Code: LTS0514.176klp  
Material: Sample Water  
Source: Bioassay Report  
Station: Produced Water Discharge (Platform Herm)

Client: LTS Environmental, Inc.  
Project: Platform Hermosa

## Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	6.4	1.318	11.48	6	6.8	0.4	0.5657	8.84%	0
0.0239		2	6.5	5.229	7.771	6.4	6.6	0.1	0.1414	2.18%	0
0.0478		2	6.5	3.959	9.041	6.3	6.7	0.2	0.2828	4.35%	0
0.717		2	6.5	2.688	10.31	6.2	6.8	0.3	0.4243	6.53%	0
Overall		8	6.475			6	6.8				0 (0%)

## pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	7.9	7.884	7.916	7.9	7.9	0	0	0.0%	0
0.0239		2	8.05	6.144	9.956	7.9	8.2	0.15	0.2121	2.64%	0
0.0478		2	8.1	6.829	9.371	8	8.2	0.1	0.1414	1.75%	0
0.717		2	8.3	8.275	8.325	8.3	8.3	0	0	0.0%	0
Overall		8	8.088			7.9	8.3				0 (0%)

## Salinity-ppt

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	34	34	34	34	34	0	0	0.0%	0
0.0239		2	34	34	34	34	34	0	0	0.0%	0
0.0478		2	34	34	34	34	34	0	0	0.0%	0
0.717		2	34	34	34	34	34	0	0	0.0%	0
Overall		8	34			34	34				0 (0%)

## Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0
0.0239		2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0
0.0478		2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0
0.717		2	14.9	13.63	16.17	14.8	15	0.1	0.1414	0.95%	0
Overall		8	14.9			14.8	15				0 (0%)



# CETIS Measurement Report

Report Date: 02 Jun-14 12:11 (p 2 of 2)

Test Code: LTS0514.176klp | 02-0630-0531

## Macrocystis Germination and Germ Tube Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

### Dissolved Oxygen-mg/L

C-%	Control Type	1	2
0	Negative Contr	6.8	6
0.0239		6.6	6.4
0.0478		6.7	6.3
0.717		6.8	6.2

### pH-Units

C-%	Control Type	1	2
0	Negative Contr	7.9	7.9
0.0239		7.9	8.2
0.0478		8	8.2
0.717		8.3	8.3

### Salinity-ppt

C-%	Control Type	1	2
0	Negative Contr	34	34
0.0239		34	34
0.0478		34	34
0.717		34	34

### Temperature-°C

C-%	Control Type	1	2
0	Negative Contr	15	14.8
0.0239		15	14.8
0.0478		15	14.8
0.717		15	14.8

June 2, 2014

Freeport McMoRan O&G  
Attn: Ruth Juris  
201 S. Broadway  
Orcutt, CA 93455

Dear Ms. Juris:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA/600/R-95-136, 1995* "All acceptability criteria were met. This is a valid test." Results were as follows:

CLIENT:	Freeport McMoRan O&G
SAMPLE I.D.:	Produced Water Discharge (Platform Hermosa)
DATE RECEIVED:	13 May - 14
ABC LAB. NO.:	LTS0514.176

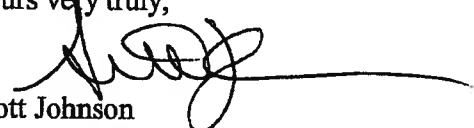
**CHRONIC ABALONE LARVAL DEVELOPMENT BIOASSAY**

IWC CONCENTRATION = 0.0478%

**TST RESULT**

**PASS**

Yours very truly,



Scott Johnson  
Laboratory Director

# CETIS Summary Report

Report Date: 29 May-14 14:15 (p 1 of 1)  
Test Code: LTS0514.176abs | 01-0895-0276

## Red Abalone Larval Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 15-4002-4820	Test Type: Development	Analyst:
Start Date: 14 May-14 11:01	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Seawater
Ending Date: 16 May-14 12:00	Species: Haliotis rufescens	Brine: Not Applicable
Duration: 49h	Source: Cultured Abalone	Age:
Sample ID: 04-1130-7541	Code: LTS0514.176abs	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 29h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

## Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
04-6043-0420	Proportion Normal	0.0717	>0.0717	NA	NA	1395	Steel Many-One Rank Sum Test

## Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
00-6834-3934	Proportion Normal	EC5	>0.0717	N/A	N/A	<1395	Linear Interpolation (ICPIN)
		EC10	>0.0717	N/A	N/A	<1395	
		EC15	>0.0717	N/A	N/A	<1395	
		EC20	>0.0717	N/A	N/A	<1395	
		EC25	>0.0717	N/A	N/A	<1395	
		EC40	>0.0717	N/A	N/A	<1395	
		EC50	>0.0717	N/A	N/A	<1395	

## Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
00-6834-3934	Proportion Normal	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
04-6043-0420	Proportion Normal	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria

## Proportion Normal Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	0	0	0.0%	0.0%
0.0239		5	1	1	1	1	1	0	0	0.0%	0.0%
0.0478		5	1	1	1	1	1	0	0	0.0%	0.0%
0.0717		5	1	1	1	1	1	0	0	0.0%	0.0%

## Proportion Normal Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
0.0239		1	1	1	1	1
0.0478		1	1	1	1	1
0.0717		1	1	1	1	1

## Proportion Normal Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	100/100	100/100	100/100	100/100	100/100
0.0239		100/100	100/100	100/100	100/100	100/100
0.0478		100/100	100/100	100/100	100/100	100/100
0.0717		100/100	100/100	100/100	100/100	100/100

# CETIS Analytical Report

Report Date: 29 May-14 14:15 (p 1 of 2)  
Test Code: LTS0514.176abs | 01-0895-0276

## Red Abalone Larval Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-6043-0420	Endpoint: Proportion Normal	CETIS Version: CETISv1.8.7
Analyzed: 29 May-14 14:14	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes
Sample ID: 04-1130-7541	Code: LTS0514.176abs	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 29h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	0.0717	>0.0717	NA	1395

## Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		0.0239	27.5	17	1	8	0.7500	Asymp	Non-Significant Effect
		0.0478	27.5	17	1	8	0.7500	Asymp	Non-Significant Effect
		0.0717	27.5	17	1	8	0.7500	Asymp	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	3	65540	<0.0001	Significant Effect
Error	0	0	16			
Total	0		19			

## Proportion Normal Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	1	0	0.0%	0.0%
0.0239		5	1	1	1	1	1	1	0	0.0%	0.0%
0.0478		5	1	1	1	1	1	1	0	0.0%	0.0%
0.0717		5	1	1	1	1	1	1	0	0.0%	0.0%

## Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	5	1.521	1.521	1.521	1.521	1.521	1.521	0	0.0%	0.0%
0.0239		5	1.521	1.521	1.521	1.521	1.521	1.521	0	0.0%	0.0%
0.0478		5	1.521	1.521	1.521	1.521	1.521	1.521	0	0.0%	0.0%
0.0717		5	1.521	1.521	1.521	1.521	1.521	1.521	0	0.0%	0.0%

## Proportion Normal Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
0.0239		1	1	1	1	1
0.0478		1	1	1	1	1
0.0717		1	1	1	1	1

## Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.521	1.521	1.521	1.521	1.521
0.0239		1.521	1.521	1.521	1.521	1.521
0.0478		1.521	1.521	1.521	1.521	1.521
0.0717		1.521	1.521	1.521	1.521	1.521

## Proportion Normal Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	100/100	100/100	100/100	100/100	100/100
0.0239		100/100	100/100	100/100	100/100	100/100
0.0478		100/100	100/100	100/100	100/100	100/100
0.0717		100/100	100/100	100/100	100/100	100/100

# CETIS Analytical Report

Report Date: 29 May-14 14:15 (p 2 of 2)

Test Code: LTS0514.176abs | 01-0895-0276

## Red Abalone Larval Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 04-6043-0420

Endpoint: Proportion Normal

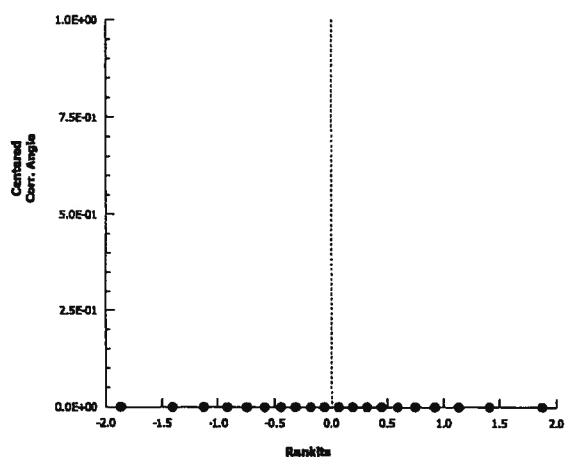
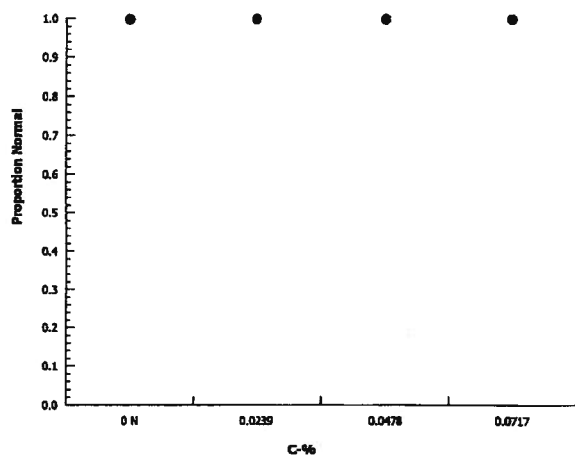
CETIS Version: CETISv1.8.7

Analyzed: 29 May-14 14:14

Analysis: Nonparametric-Control vs Treatments

Official Results: Yes

### Graphics



# CETIS Analytical Report

Report Date: 29 May-14 14:15 (p 1 of 2)

Test Code: LTS0514.176abs | 01-0895-0276

## Red Abalone Larval Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-6834-3934  
Analyzed: 29 May-14 14:14

Endpoint: Proportion Normal  
Analysis: Linear Interpolation (ICPIN)

CETIS Version: CETISv1.8.7  
Official Results: Yes

Sample ID: 04-1130-7541  
Sample Date: 13 May-14 06:00  
Receive Date: 13 May-14 15:25  
Sample Age: 29h (1.6 °C)

Code: LTS0514.176abs  
Material: Sample Water  
Source: Bioassay Report  
Station: Produced Water Discharge (Platform Herm)

Client: LTS Environmental, Inc.  
Project: Platform Hermosa

## Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

## Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>0.0717	N/A	N/A	<1395	NA	NA
EC10	>0.0717	N/A	N/A	<1395	NA	NA
EC15	>0.0717	N/A	N/A	<1395	NA	NA
EC20	>0.0717	N/A	N/A	<1395	NA	NA
EC25	>0.0717	N/A	N/A	<1395	NA	NA
EC40	>0.0717	N/A	N/A	<1395	NA	NA
EC50	>0.0717	N/A	N/A	<1395	NA	NA

## Proportion Normal Summary

### Calculated Variate(A/B)

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	5	1	1	1	0	0	0.0%	0.0%	500	500
0.0239		5	1	1	1	0	0	0.0%	0.0%	500	500
0.0478		5	1	1	1	0	0	0.0%	0.0%	500	500
0.0717		5	1	1	1	0	0	0.0%	0.0%	500	500

## Proportion Normal Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
0.0239		1	1	1	1	1
0.0478		1	1	1	1	1
0.0717		1	1	1	1	1

## Proportion Normal Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	100/100	100/100	100/100	100/100	100/100
0.0239		100/100	100/100	100/100	100/100	100/100
0.0478		100/100	100/100	100/100	100/100	100/100
0.0717		100/100	100/100	100/100	100/100	100/100

# CETIS Analytical Report

Report Date: 29 May-14 14:15 (p 2 of 2)

Test Code: LTS0514.176abs | 01-0895-0276

Red Abalone Larval Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 00-6834-3934

Endpoint: Proportion Normal

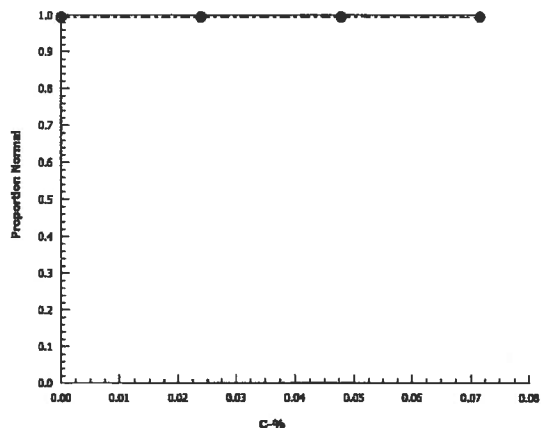
CETIS Version: CETISv1.8.7

Analyzed: 29 May-14 14:14

Analysis: Linear Interpolation (ICPIN)

Official Results: Yes

## Graphics



# CETIS Measurement Report

Report Date: 29 May-14 14:15 (p 1 of 2)  
Test Code: LTS0514.176abs | 01-0895-0276

## Red Abalone Larval Development Test

Aquatic Bioassay & Consulting Labs, Inc.

Batch ID: 15-4002-4820	Test Type: Development	Analyst:
Start Date: 14 May-14 11:01	Protocol: EPA/600/R-95/136 (1995)	Diluent: Laboratory Seawater
Ending Date: 16 May-14 12:00	Species: Haliotis rufescens	Brine: Not Applicable
Duration: 49h	Source: Cultured Abalone	Age:
Sample ID: 04-1130-7541	Code: LTS0514.176abs	Client: LTS Environmental, Inc.
Sample Date: 13 May-14 06:00	Material: Sample Water	Project: Platform Hermosa
Receive Date: 13 May-14 15:25	Source: Bioassay Report	
Sample Age: 29h (1.6 °C)	Station: Produced Water Discharge (Platform Herm)	

## Parameter Acceptability Criteria

Parameter	Min	Max	Acceptability Limits	Overlap	Decision
Salinity-ppt	34	34	32 - 36	Yes	Results Within Limits
Temperature-°C	14	14.2	14 - 16	Yes	Results Within Limits

## Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	5.9	-5.536	17.34	5	6.8	0.9	1.273	21.57%	0
0.0239		2	5.65	-8.962	20.26	4.5	6.8	1.15	1.628	28.78%	0
0.0478		2	5.9	-9.347	21.15	4.7	7.1	1.2	1.697	28.76%	0
0.0717		2	6.3	-3.865	16.46	5.5	7.1	0.8	1.131	17.96%	0
Overall		8	5.938			4.5	7.1				0 (0%)

## pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	7.5	7.5	7.5	7.5	7.5	0	0	0.0%	0
0.0239		2	7.5	7.5	7.5	7.5	7.5	0	0	0.0%	0
0.0478		2	7.5	7.5	7.5	7.5	7.5	0	0	0.0%	0
0.0717		2	7.55	6.915	8.185	7.5	7.6	0.05	0.07071	0.94%	0
Overall		8	7.513			7.5	7.6				0 (0%)

## Salinity-ppt

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	34	34	34	34	34	0	0	0.0%	0
0.0239		2	34	34	34	34	34	0	0	0.0%	0
0.0478		2	34	34	34	34	34	0	0	0.0%	0
0.0717		2	34	34	34	34	34	0	0	0.0%	0
Overall		8	34			34	34				0 (0%)

## Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	2	14.1	12.83	15.37	14	14.2	0.1	0.1414	1.0%	0
0.0239		2	14.1	12.83	15.37	14	14.2	0.1	0.1414	1.0%	0
0.0478		2	14.1	12.83	15.37	14	14.2	0.1	0.1414	1.0%	0
0.0717		2	14.1	12.83	15.37	14	14.2	0.1	0.1414	1.0%	0
Overall		8	14.1			14	14.2				0 (0%)



# CETIS Measurement Report

Report Date: 29 May-14 14:15 (p 2 of 2)

Test Code: LTS0514.176abs | 01-0895-0276

## Red Abalone Larval Development Test

Aquatic Bioassay & Consulting Labs, Inc.

### Dissolved Oxygen-mg/L

C-%	Control Type	1	2
0	Negative Contr	6.8	5
0.0239		6.8	4.5
0.0478		7.1	4.7
0.0717		7.1	5.5

### pH-Units

C-%	Control Type	1	2
0	Negative Contr	7.5	7.5
0.0239		7.5	7.5
0.0478		7.5	7.5
0.0717		7.5	7.6

### Salinity-ppt

C-%	Control Type	1	2
0	Negative Contr	34	34
0.0239		34	34
0.0478		34	34
0.0717		34	34

### Temperature-°C

C-%	Control Type	1	2
0	Negative Contr	14	14.2
0.0239		14	14.2
0.0478		14	14.2
0.0717		14	14.2

<b>LTS Environmental, Inc.</b> <b>704 Adirondack Avenue</b> <b>Ventura, CA 93003</b> <b>805-644-4560</b>	<b>Report to:</b> Freeport McMoRan O&G Ruth Juris 201 S Broadway Orcutt, Ca 93455	<b>Bill to:</b> Freeport McMoRan O&G 700 Milam, Suite 3100 Houston, Tx 77002
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FACILITY: Platform Hermosa  
COLLECTOR: LTS /  
PROJECT/CHARGE # Quarterly NPDES 3-species Toxicity  
RESULTS REQUIRED: normal  
RESULTS BY: PHONE: FAX:

SUBMITTED TO: ABC Lab  
REPORT TO: George Folks PHONE: \_\_\_\_\_  
COPIES TO: Steve Lawry @ LTS FAX: \_\_\_\_\_  
Platform Supervisor PHONE: 644-4560  
(@ Orcutt) PHONE: \_\_\_\_\_

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	(@ Orcutt) ANALYSES REQUESTED (METHOD)
1	Produced Water Discharge	Comp	1 gallon	5-12/13-14 ★	—	Red Abalone - Larval development Giant Kelp - Germination & germ tube length Top Smelt - Larval survival & growth  IWC = .8478 1.5x IWC = .6717 0.5 x IWC = .0239
						Composite times (3-hour intervals):
						*900 · 1200 · 1500 · 1800 · 2100 · 0000 · 0300 · 0600

Comments:

**Comments:**

Relinquished by: [Signature] Date: 1/25  
Received by: [Signature] Time: 5:13 PM

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Refiniquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

$\text{pH} = 1.6$   
 $\text{Citrate} = < 0.1$   
 $\text{Ammonia} = > 10$



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
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**Prepared for:** Freeport McMoRan O&G  
C/O: LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** May 27, 2014

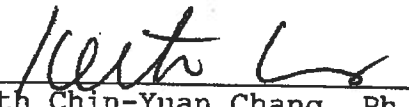
**Laboratory Number:** 141261

**Project Name:** PF Hermosa, Annual NPDES Produced Water Monitoring

On May 13, 2014, Capco Analytical Services, Inc.(CAS), received three(3) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
NPDES PROD. WATER	141261-01
NPDES PROD. WATER	141261-02
NPDES PROD. WATER	141261-03

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 9 pages excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Environmental and Analytical Services-Since 1994  
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### CERTIFICATE OF ANALYSIS

Client: Freeport McMoran (PF Hermosa)  
CAS LAB NO: 141261  
Analyst: ABE

Date Sampled: 05/12/14  
Date Received: 05/13/14  
Date Analyzed: 05/14/14  
Sample Matrix: Water

#### TOTAL COPPER EPA Method 200.7

CAS Lab #	Sample ID	RESULTS ( $\mu\text{g/L}$ )	Dilution Factor	PQL ( $\mu\text{g/L}$ )	MDL ( $\mu\text{g/L}$ )
141261-01	NPDES Prod. Water	ND	1	20	4

#### QUALITY CONTROL SECTION

141261-MB	Method Blank	ND	1	20	4
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Capco Analytical Services  
1536 Eastman Avenue  
Ventura CA, 93003

Date Received: 05/14/14 09:45  
Date Reported: 05/21/14 10:50

Sampled: 05/12/14 14:00

4E14048-01 141261-02

Sampled By: Client

Matrix: Water

## Volatile Organics by EPA Method 624

Method: EPA 624

Batch: W4E0843

Prepared: 05/15/14 13:59

Analyst: Marfel Tison

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Benzene	720	50	ug/l	50	05/17/14 08:31	
Surr: 1,2-Dichloroethane-d4	97 %	Conc:48.5	82-125	%		
Surr: 4-Bromofluorobenzene	107 %	Conc:53.3	88-108	%		
Surr: Toluene-d8	101 %	Conc:50.6	92-112	%		



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Ventura CA, 93003

Date Received: 05/14/14 08:30  
Date Reported: 05/21/14 12:11

4E14004-01 141261-03

Sampled: 05/12/14 14:00

Sampled By: Client

Matrix: Water

## Acid and Base/Neutral Extractables by EPA Method 625

Method: EPA 625

Batch: W4E0877

Prepared: 05/16/14 10:01

Analyst: Armando Bielma

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Benzo (a) anthracene	ND	0.95	5.0	ug/l	5	05/19/14 21:41	M-04
Benzo (a) pyrene	ND	0.65	5.0	ug/l	5	05/19/14 21:41	M-04
Benzo (b) fluoranthene	ND	0.70	5.0	ug/l	5	05/19/14 21:41	M-04
Benzo (k) fluoranthene	ND	1.1	5.0	ug/l	5	05/19/14 21:41	M-04
Chrysene	ND	0.95	5.0	ug/l	5	05/19/14 21:41	M-04
Dibenzo (a,h) anthracene	ND	0.40	10	ug/l	5	05/19/14 21:41	M-04
Sum: 2,4,6-Tribromophenol	66 %	Conc:62.9	25-102	%			M-04
Sum: 2-Fluorobiphenyl	86 %	Conc:41.1	22-107	%			M-04
Sum: 2-Fluorophenol	48 %	Conc:46.1	3-74	%			M-04
Sum: Nitrobenzene-d5	77 %	Conc:36.6	27-111	%			M-04
Sum: Phenol-d5	33 %	Conc:31.4	0.1-53	%			M-04
Sum: Terphenyl-d14	92 %	Conc:43.6	28-113	%			M-04



**Analytical Services, Inc.**

Environmental and Analytical Services-Since 1994

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## **QUALITY CONTROL SECTION**

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1536 Eastman Ave. Suite B, Ventura, California 93003 Ph: (805)644-1095 FAX: (805)644-9947  
[www.capcoenv.com](http://www.capcoenv.com)



## WECK LABORATORIES, INC.

Analytical Laboratory Service - Since 1964

Capco Analytical Services  
1536 Eastman Avenue  
Ventura CA, 93003

Date Received: 05/14/14 08:30  
Date Reported: 05/21/14 12:11

## Acid and Base/Neutral Extractables by EPA Method 825 - Quality Control

Batch W4E0877 - EPA 625

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
Blank (W4E0877-BLK1)											
Analyzed: 05/19/14 19:41											
Benzo (a) anthracene	ND	0.19	1.0	ug/l							
Benzo (a) pyrene	ND	0.13	1.0	ug/l							
Benzo (b) fluoranthene	ND	0.14	1.0	ug/l							
Benzo (k) fluoranthene	ND	0.22	1.0	ug/l							
Chrysene	ND	0.19	1.0	ug/l							
Dibenzo (a,h) anthracene	ND	0.080	2.0	ug/l							
Surr: 2,4,6-Tribromophenol	68.9			ug/l	100		69	25-102			
Surr: 2-Fluorobiphenyl	35.6			ug/l	50.0		71	22-107			
Surr: 2-Fluorophenol	47.0			ug/l	100		47	3-74			
Surr: Nitrobenzene-d5	38.2			ug/l	50.0		76	27-111			
Surr: Phenol-d5	26.6			ug/l	100		27	0.1-53			
Surr: Terphenyl-d14	52.3			ug/l	50.0		105	28-113			
LCS (W4E0877-BS1)											
Analyzed: 05/19/14 20:10											
1,2,4-Trichlorobenzene	28.7	0.55	1.0	ug/l	50.0		57	44-142			
1,2-Dichlorobenzene	26.7	0.57	1.0	ug/l	50.0		53	32-129			
1,3-Dichlorobenzene	25.3	0.53	1.0	ug/l	50.0		51	0.1-172			
1,4-Dichlorobenzene	27.4	0.55	1.0	ug/l	50.0		55	20-124			
2,4,6-Trichlorophenol	25.7	0.22	1.0	ug/l	50.0		51	37-144			
2,4-Dichlorophenol	34.7	0.26	1.0	ug/l	50.0		69	39-135			
2,4-Dimethylphenol	27.8	0.30	1.0	ug/l	50.0		56	32-119			
2,4-Dinitrophenol	18.9	1.6	10	ug/l	50.0		38	0.1-191			
2,4-Dinitrotoluene	41.3	0.18	1.0	ug/l	50.0		83	39-139			
2,6-Dinitrotoluene	43.3	0.27	1.0	ug/l	50.0		87	50-158			
2-Chloronaphthalene	35.1	0.45	1.0	ug/l	50.0		70	60-118			
2-Chlorophenol	27.8	0.28	1.0	ug/l	50.0		56	23-134			
2-Methyl-4,6-dinitrophenol	27.4	1.7	5.0	ug/l	50.0		55	0.1-181			
2-Nitrophenol	30.5	0.26	1.0	ug/l	50.0		61	29-182			
3,3'-Dichlorobenzidine	81.2	1.2	5.0	ug/l	50.0		162	0.1-262			
4,6-Dinitro-2-methylphenol	27.4	1.7	5.0	ug/l	50.0		55	0.1-181			
4-Bromophenyl phenyl ether	36.6	0.36	1.0	ug/l	50.0		73	53-127			
4-Chloro-3-methylphenol	38.9	0.23	1.0	ug/l	50.0		78	22-147			
4-Chlorophenyl phenyl ether	38.9	0.41	1.0	ug/l	50.0		78	25-158			
4-Nitrophenol	13.3	0.45	5.0	ug/l	50.0		27	0.1-132			
Acenaphthene	37.4	0.38	1.0	ug/l	50.0		75	47-145			
Acenaphthylene	40.8	0.40	1.0	ug/l	50.0		82	33-145			
Anthracene	41.2	0.34	1.0	ug/l	50.0		82	27-133			
Benzo (a) anthracene	50.1	0.19	1.0	ug/l	50.0		100	33-143			
Benzo (a) pyrene	41.6	0.13	1.0	ug/l	50.0		83	17-163			
Benzo (b) fluoranthene	46.0	0.14	1.0	ug/l	50.0		92	24-159			
Benzo (g,h,i) perylene	24.5	0.10	2.0	ug/l	50.0		49	0.1-219			





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Analytical Laboratory Service - Since 1964

Capco Analytical Services  
1536 Eastman Avenue  
Ventura CA, 93003

Date Received: 05/14/14 08:30  
Date Reported: 05/21/14 12:11

## Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Batch W4E0877 - EPA 625

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS (W4E0877-BS1)											
Analyzed: 05/19/14 20:10											
Benzo (k) fluoranthene	44.6	0.22	1.0	ug/l	50.0		89	11-162			
Benzyl butyl phthalate	48.5	0.18	1.0	ug/l	50.0		97	0.1-152			
Bis(2-chloroethoxy)methane	34.7	0.25	1.0	ug/l	50.0		69	33-184			
Bis(2-chloroethyl)ether	29.0	0.27	1.0	ug/l	50.0		58	12-158			
Bis(2-chloroisopropyl)ether	26.9	0.38	1.0	ug/l	50.0		54	36-166			
Bis(2-ethylhexyl)phthalate	52.0	2.3	5.0	ug/l	50.0		104	8-158			
Butyl benzyl phthalate	48.5	0.18	1.0	ug/l	50.0		97	0.1-152			
Chrysene	42.1	0.19	1.0	ug/l	50.0		84	17-168			
Dibenzo (a,h) anthracene	26.7	0.080	2.0	ug/l	50.0		53	0.1-227			
Diethyl phthalate	45.0	0.15	1.0	ug/l	50.0		90	0.1-114			
Dimethyl phthalate	50.2	0.18	1.0	ug/l	50.0		100	0.1-112			
Di-n-butyl phthalate	44.9	0.24	1.0	ug/l	50.0		90	1-118			
Di-n-octyl phthalate	37.7	0.19	1.0	ug/l	50.0		75	4-146			
Fluoranthene	50.1	0.22	1.0	ug/l	50.0		100	26-137			
Fluorene	41.5	0.35	1.0	ug/l	50.0		83	59-121			
Hexachlorobenzene	46.0	0.49	1.0	ug/l	50.0		92	0.1-152			
Hexachlorobutadiene	29.1	0.47	1.0	ug/l	50.0		58	24-116			
Hexachlorocyclopentadiene	17.5	1.5	5.0	ug/l	50.0		35	0.1-81			
Hexachloroethane	26.9	0.52	1.0	ug/l	50.0		54	40-113			
Indeno (1,2,3-cd) pyrene	23.9	0.12	2.0	ug/l	50.0		48	0.1-171			
Isophorone	35.4	0.21	1.0	ug/l	50.0		71	21-196			
Naphthalene	31.5	0.49	1.0	ug/l	50.0		63	21-133			
Nitrobenzene	32.5	0.36	1.0	ug/l	50.0		65	35-180			
N-Nitrosodimethylamine	19.2	0.14	1.0	ug/l	50.0		38	15-59			
N-Nitrosodi-n-propylamine	34.0	0.26	1.0	ug/l	50.0		68	0.1-230			
N-Nitrosodiphenylamine	35.5	0.19	1.0	ug/l	50.0		71	42-90			
Pentachlorophenol	29.0	0.19	1.0	ug/l	50.0		58	14-176			
Phenanthrene	42.9	0.32	1.0	ug/l	50.0		86	54-120			
Phenol	11.0	0.16	1.0	ug/l	50.0		22	5-112			
Pyrene	48.0	0.25	1.0	ug/l	50.0		96	52-115			
Surr: 2,4,6-Tribromophenol	77.0			ug/l	100		77	25-102			
Surr: 2-Fluorobiphenyl	38.3			ug/l	50.0		77	22-107			
Surr: 2-Fluorophenol	37.2			ug/l	100		37	3-74			
Surr: Nitrobenzene-d5	33.0			ug/l	50.0		66	27-111			
Surr: Phenol-d5	22.8			ug/l	100		23	0.1-53			
Surr: Terphenyl-d14	49.1			ug/l	50.0		98	28-113			
LCS Dup (W4E0877-BSD1)											
Analyzed: 05/19/14 20:40											
1,2,4-Trichlorobenzene	38.5	0.55	1.0	ug/l	50.0		77	44-142	29	30	
1,2-Dichlorobenzene	34.4	0.57	1.0	ug/l	50.0		69	32-129	25	30	
1,3-Dichlorobenzene	33.3	0.53	1.0	ug/l	50.0		67	0.1-172	27	30	

Page 6 of 9

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1536 Eastman Avenue  
Ventura CA, 93003

Date Received: 05/14/14 08:30  
Date Reported: 05/21/14 12:11

## Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control

Batch W4E0877 - EPA 625

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
LCS Dup (W4E0877-BSD1)											
Analyzed: 05/19/14 20:40											
1,4-Dichlorobenzene	37.8	0.55	1.0	ug/l	50.0		76	20-124	32	30	Q-12
2,4,6-Trichlorophenol	31.5	0.22	1.0	ug/l	50.0		83	37-144	20	30	
2,4-Dichlorophenol	40.4	0.26	1.0	ug/l	50.0		81	39-135	15	30	
2,4-Dimethylphenol	27.4	0.30	1.0	ug/l	50.0		55	32-119	1	30	
2,4-Dinitrophenol	29.3	1.6	10	ug/l	50.0		59	0.1-191	43	30	Q-12
2,4-Dinitrotoluene	42.3	0.18	1.0	ug/l	50.0		85	39-139	2	30	
2,6-Dinitrotoluene	45.7	0.27	1.0	ug/l	50.0		91	50-158	5	30	
2-Chloronaphthalene	42.4	0.45	1.0	ug/l	50.0		85	60-118	19	30	
2-Chlorophenol	32.9	0.28	1.0	ug/l	50.0		86	23-134	17	30	
2-Methyl-4,6-dinitrophenol	38.7	1.7	5.0	ug/l	50.0		77	0.1-181	34	30	Q-12
2-Nitrophenol	36.5	0.26	1.0	ug/l	50.0		73	29-182	18	30	
3,3'-Dichlorobenzidine	87.0	1.2	5.0	ug/l	50.0		174	0.1-262	7	30	
4,6-Dinitro-2-methylphenol	38.7	1.7	5.0	ug/l	50.0		77	0.1-181	34	30	Q-12
4-Bromophenyl phenyl ether	38.2	0.36	1.0	ug/l	50.0		76	53-127	4	30	
4-Chloro-3-methylphenol	41.4	0.23	1.0	ug/l	50.0		83	22-147	6	30	
4-Chlorophenyl phenyl ether	42.7	0.41	1.0	ug/l	50.0		85	25-158	9	30	
4-Nitrophenol	17.9	0.45	5.0	ug/l	50.0		36	0.1-132	29	30	
Acenaphthene	43.6	0.38	1.0	ug/l	50.0		87	47-145	15	30	
Acenaphthylene	46.6	0.40	1.0	ug/l	50.0		93	33-145	13	30	
Anthracene	42.8	0.34	1.0	ug/l	50.0		86	27-133	4	30	
Benzo (a) anthracene	51.3	0.19	1.0	ug/l	50.0		103	33-143	2	30	
Benzo (a) pyrene	43.6	0.13	1.0	ug/l	50.0		87	17-163	5	30	
Benzo (b) fluoranthene	48.8	0.14	1.0	ug/l	50.0		98	24-159	6	30	
Benzo (g,h,i) perylene	23.1	0.10	2.0	ug/l	50.0		46	0.1-219	8	30	
Benzo (k) fluoranthene	49.1	0.22	1.0	ug/l	50.0		98	11-162	10	30	
Benzyl butyl phthalate	48.0	0.18	1.0	ug/l	50.0		96	0.1-152	1	30	
Bis(2-chloroethoxy)methane	39.6	0.25	1.0	ug/l	50.0		79	33-184	13	30	
Bis(2-chloroethyl)ether	34.7	0.27	1.0	ug/l	50.0		69	12-158	18	30	
Bis(2-chloroisopropyl)ether	32.1	0.38	1.0	ug/l	50.0		64	36-166	18	30	
Bis(2-ethylhexyl)phthalate	53.2	2.3	5.0	ug/l	50.0		106	8-158	2	30	
Butyl benzyl phthalate	48.0	0.18	1.0	ug/l	50.0		96	0.1-152	1	30	
Chrysene	44.8	0.19	1.0	ug/l	50.0		90	17-168	6	30	
Dibenzo (a,h) anthracene	26.3	0.080	2.0	ug/l	50.0		53	0.1-227	2	30	
Diethyl phthalate	45.8	0.15	1.0	ug/l	50.0		92	0.1-114	2	30	
Dimethyl phthalate	52.4	0.18	1.0	ug/l	50.0		105	0.1-112	4	30	
Di-n-butyl phthalate	45.7	0.24	1.0	ug/l	50.0		91	1-118	2	30	
Di-n-octyl phthalate	39.7	0.19	1.0	ug/l	50.0		79	4-146	5	30	
Fluoranthene	50.0	0.22	1.0	ug/l	50.0		100	26-137	0.3	30	
Fluorene	45.0	0.35	1.0	ug/l	50.0		90	59-121	8	30	

Page 7 of 9

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Capco Analytical Services  
1536 Eastman Avenue  
Ventura CA, 93003

Date Received: 05/14/14 08:30  
Date Reported: 05/21/14 12:11

**Acid and Base/Neutral Extractables by EPA Method 625 - Quality Control****Batch W4E0877 - EPA 625**

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	% REC Limits	RPD	RPD Limit	Data Qualifiers
<b>LCS Dup (W4E0877-BSD1)</b>											
Analyzed: 05/19/14 20:40											
Hexachlorobenzene	46.2	0.49	1.0	ug/l	50.0		92	0.1-152	0.4	30	
Hexachlorobutadiene	41.8	0.47	1.0	ug/l	50.0		84	24-116	36	30	Q-12
Hexachlorocyclopentadiene	24.6	1.5	5.0	ug/l	50.0		49	0.1-81	34	30	Q-12
Hexachloroethane	37.6	0.52	1.0	ug/l	50.0		75	40-113	33	30	Q-12
Indeno (1,2,3-cd) pyrene	23.2	0.12	2.0	ug/l	50.0		46	0.1-171	3	30	
Isophorone	39.8	0.21	1.0	ug/l	50.0		80	21-198	12	30	
Naphthalene	38.6	0.49	1.0	ug/l	50.0		77	21-133	20	30	
Nitrobenzene	42.4	0.36	1.0	ug/l	50.0		85	35-180	26	30	
N-Nitrosodimethylamine	21.8	0.14	1.0	ug/l	50.0		44	15-59	13	30	
N-Nitrosodi-n-propylamine	41.4	0.28	1.0	ug/l	50.0		83	0.1-230	20	30	
N-Nitrosodiphenylamine	35.6	0.19	1.0	ug/l	50.0		71	42-90	0.5	30	
Pentachlorophenol	36.8	0.19	1.0	ug/l	50.0		74	14-176	24	30	
Phenanthrene	43.4	0.32	1.0	ug/l	50.0		87	54-120	1	30	
Phenol	12.7	0.16	1.0	ug/l	50.0		25	5-112	14	30	
Pyrene	48.8	0.25	1.0	ug/l	50.0		98	52-115	2	30	
Surr: 2,4,6-Trifluorophenol	84.0			ug/l	100		84	25-102			
Surr: 2-Fluorobiphenyl	42.8			ug/l	50.0		86	22-107			
Surr: 2-Fluorophenol	45.6			ug/l	100		45	3-74			
Surr: Nitrobenzene-d5	37.8			ug/l	50.0		76	27-111			
Surr: Phenol-d5	27.4			ug/l	100		27	0.1-53			
Surr: Terphenyl-d14	48.4			ug/l	50.0		97	28-113			



Capco Analytical Services  
1536 Eastman Avenue  
Ventura CA, 93003

Date Received: 05/14/14 08:30  
Date Reported: 05/21/14 12:11

### Notes and Definitions

Q-12	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on the percent recoveries and/or other acceptable QC data.
M-04	Due to the nature of matrix interferences, sample extract was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL)
NR	Not Reportable
DII	Dilution
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
% Rec	Percent Recovery
Sub	Subcontracted analysis, original report available upon request
MDL	Method Detection Limit
MDA	Minimum Detectable Activity
MRL	Method Reporting Limit

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

An Absence of Total Coliform meets the drinking water standards as established by the California Department of Health Services.

The Reporting Limit (RL) is referenced as the Laboratory's Practical Quantitation Limit (PQL) or the Detection Limit for Reporting Purposes (DLR).

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

141261

**LTS Environmental, Inc.**  
**704 Adirondack Avenue**  
**Ventura, CA 93003**  
**805-644-4560**

**Report to:** Freeport McMoRan O&G  
 c/o LTS, 704 Adirondack Ave  
 Ventura, CA 93003

**Bill to:** Freeport McMoRan O&G  
 700 Milam, Ste. 3100  
 Houston, Tx 77002

**FACILITY:** Platform Hermosa  
**COLLECTOR:** LTS /  
**PROJECT/CHARGE #** Annual NPDES Produced Water Monitoring  
**RESULTS REQUIRED:** normal  
**RESULTS BY: PHONE:** \_\_\_\_\_ **FAX:** \_\_\_\_\_

**SUBMITTED TO:** Capco Analytical Services  
**REPORT TO:** S.G. Lawry @ LTS **PHONE:** 644-4560  
**COPIES TO:** Platform Supervisor (201 S Broadway, Orcutt)  
 Ruth Juris (email) **PHONE:** \_\_\_\_\_

SAMPLE NO.	SAMPLE ID	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod. Water	grab	1 L plastic	5.12.14 1400	HNO <sub>3</sub>	<b>Metals:</b> Copper MDL: 10 ug/L
2	NPDES Prod. Water	grab	240 mL VOA	1400	* ice	<b>EPA 602:</b> Benzene MDL: 3 ug/L
3	NPDES Prod. Water	grab	1L Amber	1400	---	<b>EPA 625:</b> Benzo(a)anthracene MDL: 2 ug/L Benzo(a)pyrene MDL: 2 ug/L Chrysene MDL: 2 ug/L Benzo(b)fluoranthene MDL: 2 ug/L Benzo(k)fluoranthene MDL: 2 ug/L Dibenzo(a,h)anthracene MDL: 2 ug/L

**Comments:** \* Analyze EPA 602 in 7 days - no preservative (HCl) added due to high bicarb. levels.

**Capco: Please report MDLs and PQLs on lab report**

Relinquished by:  Date: 5.13.14  
 Received by: \_\_\_\_\_ Time: 1530

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** May 13, 2014

**Laboratory Number:** 141213

**Project Name:** PF Hermosa Monthly NPDES Produced Water Monitoring

On May 8, 2014, Capco Analytical Services, Inc. (CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

NPDES PROD. WATER

141213-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

A handwritten signature in black ink, appearing to read "Keith", is written over a horizontal line.

Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoran (PF Hermosa)  
CAS LAB NO: 141213  
Analyzed By: AN

Date Sampled: 05/06/14  
Date Received: 05/08/14  
Date Analyzed: 05/13/14  
Sample Matrix: Water

### DISSOLVED SULFIDE EPA METHOD 4500S<sup>-2</sup>F

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141213-01	NPDES Prod. Water	138	1	0.04	0.2

### QUALITY CONTROL DATA

141213-MB	Method Blank	ND	1	0.04	0.2
-----------	--------------	----	---	------	-----

mg/L: Milligrams/Liter (ppm)  
DF: Dilution Factor



141213

LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
805-644-4560

Report to: Freeport McMoRan O&G  
c/o LTS, 704 Adirondack Ave  
Ventura, CA 93003

Bill to: Freeport McMoRan O&G  
700 Milam, Ste. 3100  
Houston, Tx 77002

5/15 5/16

FACILITY: Platform Hermosa  
COLLECTOR: LTS/  
PROJECT/CHARGE #: Monthly NPDES Produced Water Monitoring  
RESULTS REQUIRED: normal  
RESULTS BY: PHONE: FAX:

SUBMITTED TO: Capco Analytical Services  
REPORT TO: S.G. Lawry @ LTS PHONE: 644-4560  
COPIES TO: Platform Supervisor (201 S Broadway, Orcutt)  
Ruth Juris (email) PHONE:

SAMPLE NO.	SAMPLE ID	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod. Water	grab	500 mL plastic	5/8/2014 1905	NaOH-Zn AIC3	Dissolved Sulfides (Method SM4500S-2F) MDL: 20 ug/L (Dissolved sulfides were preserved & filtered in the field prior to submittal) Hold: <span style="background-color: black; color: black;">XXXXXXXXXX</span> Conductivity TBD. See chain Field Test Results: 140 ppm.

Comments:

Capco: Please report MDLs and PQLs on lab report

Relinquished by:  Date: 5.8.14  
Received by:  Time: 1205

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_





Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** May 15, 2014

**Laboratory Number:** 141262

**Project Name:** PF Hermosa Monthly NPDES Produced Water Monitoring

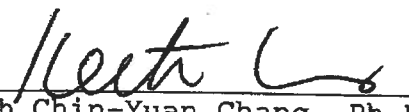
On May 13, 2014, Capco Analytical Services, Inc. (CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION

CAS LAB NUMBER ID

OCEAN WATER @-FIRE WATER PUMPS 141262-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoran (PF Hermosa)  
CAS LAB NO: 141262  
Analyst: GP

Date Sampled: 05/13/14  
Date Received: 05/13/14  
Date Analyzed: 05/13/14  
Sample Matrix: Water

### SPECIFIC CONDUCTIVITY EPA Method 120.1

CAS LAB #	Sample ID	RESULTS ( $\mu\text{S}/\text{cm}$ )	DF	PQL ( $\mu\text{S}/\text{cm}$ )
141262-01	Ocean Water @-Fire Water Pumps	51200	1	1

14 1262

<b>LTS Environmental, Inc.</b> <b>704 Adirondack Avenue</b> <b>Ventura, CA 93003</b> <b>805.844.4560</b>	<b>Report to:</b> Freeport McMoRan O&G c/o LTS, 704 Adirondack Ave Ventura, CA 93003	<b>Bill to:</b> Freeport McMoRan O&G 700 Milam, Ste. 3100 Houston, Tx 77002

FACILITY: Platform Hermosa  
COLLECTOR: LTS /  
PROJECT/CHARGE # Monthly NPDES Produced Water Monitoring  
RESULTS REQUIRED: normal  
RESULTS BY: PHONE: FAX:

SUBMITTED TO: Capco Analytical Services  
REPORT TO: S.G. Lawry @ LTS PHONE: 644-4560  
COPIES TO: Platform Supervisor (201 S Broadway, Orcutt)  
Ruth Juris (email) PHONE:

SAMPLE NO.	SAMPLE ID	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	Ocean Water @ Fire Water pumps	grab	1	5.13.14 500	Ice	Conductivity <span style="float: right;">5/21 5/22</span> D.52

Comments: Dissolved Sulfides collected the previous week

Comments: Dissolved Sulfides collected the previous week.

**Capco: Please report MDLs and PQLs on lab report**

Relinquished by: [Signature] Date: 5.13.14  
Received by: [Signature] Time: 1530

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** June 16, 2014

**Laboratory Number:** 141507

**Project Name:** PF Hermosa NPDES Produced Water Weekly


**Sampled by:** Client

On June 9, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
PRODUCED WATER	141507-01
PRODUCED WATER	141507-02*
PRODUCED WATER	141507-03*
PRODUCED WATER	141507-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

 FOR  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)	Date Sampled: 06/06/14
CAS LAB NO: 141507	Date Received: 06/09/14
Analyst: GM	Date Analyzed: 06/11/14
	Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141507-01	Produced Water	6.9	1	1	5

### QUALITY CONTROL DATA

141507-MB	Method Blank	ND	1	1	5
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141507

<b>LTS ENVIRONMENTAL, INC.</b> 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	<b>Report to:</b> FM O&G c/o Steve Lawry	<b>Bill to:</b> FM O&G	6/16 6/17
		Accounts Payable 700 Milam Ste 3100 Houston, TX, 77002	

FACILITY: Pi. Hermes  
 COLLECTOR: LTS / C. Jennings  
 PROJECT/CHARGE #: NPDES Produced Water Weeklu  
 RESULTS REQUIRED: Standard  
 RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical  
 REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway PHONE: \_\_\_\_\_  
Orcutt, CA 93455 cc: Ruth Juris

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRE-SERV.	ANALYSES REQUESTED (METHOD)
1	Produced water	Grab	1	00106174 1245	<del>240</del> HCL HOT	O&G (EPA 1664)
2	↓	↓	↓	1315	↓	
3	↓	↓	↓	1345	↓	
4	↓	↓	↓	1400	↓	

Comments: Run #1; Hold 2-4 1: Abs (0+6); 1: 10 (12); 2: 09 (12); 3: 07 (12); 4: 10 (12)

Relinquished by: [Signature] Date: 6/14  
 Received by: [Signature] Time: 2:40

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

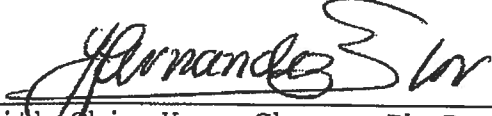
**Report Date:** June 19, 2014  
**Laboratory Number:** 141564  
**Project Name:** PF Hermosa wk(2) weekly NPDES  
**Sampled by:** Client

On June 13, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141564-01
UNICEL OUT	141564-02*
UNICEL OUT	141564-03*
UNICEL OUT	141564-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
\_\_\_\_\_  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoran O&G (PF Hermosa)	Date Sampled: 06/11/14
CAS LAB NO: 141564	Date Received: 06/13/14
Analyst: GM	Date Analyzed: 06/18/14
	Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141564-01	Unicel Out	9.8	1	1	5

### QUALITY CONTROL DATA

141564-MB	Method Blank	ND	1	1	5
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## Chain of Custody

141564

LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
805-644-4560

Report to FM O&amp;G c/o Steve Lawry

Bill to: Accounts Payable  
700 Milam Ste 3100  
Houston, TX, 77002

6/20

FACILITY: Hermosa wk(2)  
COLLECTOR: LTS  
PROJECT/CHARGE #: Weekly NPDES  
RESULTS REQUIRED: Normal  
RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services

6/23

REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_

COPIES TO: Platform Supervisor PHONE: 644-4560201 S. Broadway,Orcutt, CA 93455Ruth Juris

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unice/out	grab	1	Date: 6.11.14 Time: 1830	HCI	EPA 1664 AB5(7) IR(10)
2		grab	1	1845		
3		grab	1	1900		
4		grab	1	1915		

Comments: Run #1. Hold rest.

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: 6.13.14  
Time: 1220

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: \_\_\_\_\_  
Time: \_\_\_\_\_



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoran O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** June 24, 2014  
**Laboratory Number:** 141598  
**Project Name:** PF Hermosa wk(3) weekly NPDES  
**Sampled by:** Client

On June 18, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141598-01
UNICEL OUT	141598-02*
UNICEL OUT	141598-03*
UNICEL OUT	141598-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan O&G (PF Hermosa)  
CAS LAB NO: 141598  
Analyst: GM

Date Sampled: 06/17/14  
Date Received: 06/18/14  
Date Analyzed: 06/23/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141598-01	Unicel Out	3.9	1	1	5

### QUALITY CONTROL DATA

141598-MB	Method Blank	ND	1	1	5
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141598

## Chain of Custody

<b>LTS Environmental, Inc.</b> <b>704 Adirondack Avenue</b> <b>Ventura, CA 93003</b> <b>805-644-4560</b>	<b>Report to FM O&amp;G c/o S. Lawry</b>	<b>Bill to: Accounts Payable</b> 700 Milam Ste 3100 Houston, TX, 77002
---	--	--

FACILITY: Hermosa wk (3)  
 COLLECTOR: LTS  
 PROJECT/CHARGE # Weekly NPDES  
 RESULTS REQUIRED: Normal  
 RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services  
 REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway,  
Orcutt, CA 93455

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unleel out	grab	1	Date: 6.17.14 Time: 800	HCl	EPA 1664 Abs (7) IR(9)
2		grab	1	830		
3		grab	1	900		
4		grab	1	930		

Comments: Run #1. Hold rest

Relinquished by: [Signature] Date: 6.18.14  
 Received by: [Signature] Time: 1225

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport-McMoRan Oil & Gas  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** July 1, 2014  
**Laboratory Number:** 141662  
**Project Name:** PF Hermosa wk(4) Weekly NPDES  
**Sampled by:** Client

On June 26, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141662-01
UNICEL OUT	141662-02*
UNICEL OUT	141662-03*
UNICEL OUT	141662-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport-McMoran Oil & Gas (PF Hermosa) Date Sampled: 06/24/14  
CAS LAB NO: 141662 Date Received: 06/26/14  
Analyst: GM Date Analyzed: 06/30/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141662-01	Unicel Out	4.3	1	1	5

### QUALITY CONTROL DATA

141662-MB	Method Blank	ND	1	1	5
-----------	--------------	----	---	---	---

## Chain of Custody

<b>LTS Environmental, Inc.</b> <b>704 Adirondack Avenue</b> <b>Ventura, CA 93003</b> <b>805-644-4580</b>	<b>Report to: FM O&amp;G s c/o S. Lawry</b>	<b>Bill to: Accounts Payable</b> <b>700 Milam Ste 3100</b> <b>Houston, TX, 77002</b>
	<div style="text-align: right;">7/2</div>	

FACILITY: Hermosa wk(4)  
COLLECTOR: LTS  
PROJECT/CHARGE # Weekly NPDES  
RESULTS REQUIRED: Normal  
RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services 713  
REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway, PHONE: \_\_\_\_\_  
Orcutt, CA 93455  
Ruth Juris

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unice/out.	grab	1	Date: 6-24-14 Time: 2000	HEI	EPA 1664 Abs (8) IR (9)
2		grab	1	2030	↓	
3		grab	1	2100		
4		grab	1	2130		
						Field notes

Comments: **Run #1. Hold rest.**

Relinquished by: [Signature] Date: 6.26.14  
Received by: [Signature] Time: 1100

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport McMoRan O&G  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** June 17, 2014

**Laboratory Number:** 141565

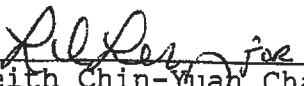
**Project Name:** PF Hermosa Monthly NPDES Produced Water Monitoring

**Sampled by:** Client

On June 13, 2014, Capco Analytical Services, Inc. (CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
OCEAN WATER @FIRE WATER PUMPS	141565-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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**Analytical Services, Inc.**

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**CERTIFICATE OF ANALYSIS**

Client: Freeport McMoran (PF Hermosa)  
CAS LAB NO: 141565  
Analyst: GP

Date Sampled: 06/12/14  
Date Received: 06/13/14  
Date Analyzed: 06/13/14  
Sample Matrix: Water

**SPECIFIC CONDUCTIVITY  
EPA Method 120.1**

CAS LAB #	Sample ID	RESULTS ( $\mu\text{S}/\text{cm}$ )	DF	PQL ( $\mu\text{S}/\text{cm}$ )
141565-01	Ocean Water @-Fire Water Pumps	51400	1	1

141565

LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
805-644-4560

Report to: Freeport McMoRan O&G  
c/o LTS, 704 Adirondack Ave  
Ventura, CA 93003

Bill to: Freeport McMoRan O&G  
700 Milam, Ste. 3100  
Houston, Tx 77002

6/20

6/23

FACILITY: Platform Hermosa  
COLLECTOR: LTS /  
PROJECT/CHARGE #: Monthly NPDES Produced Water Monitoring  
RESULTS REQUIRED: normal  
RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services  
REPORT TO: S.G. Lawry @ LTS PHONE: 644-4560  
COPIES TO: Platform Supervisor (201 S Broadway, Orcutt)  
Ruth Juris (email) PHONE: \_\_\_\_\_

SAMPLE NO.	SAMPLE ID	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	Ocean Water @ Fire Water pumps	grab	1	6.12.14 700	Ice	Conductivity P50 diesel
						Make up sample.

Comments:

Capco: Please report MDLs and PQLs on lab report

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: 6.13.14  
Time: 1220

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: \_\_\_\_\_  
Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Received by: \_\_\_\_\_

Date: \_\_\_\_\_  
Time: \_\_\_\_\_



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

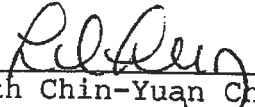
**Prepared for:** Freeport McMoRan O&G  
C/O: LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** June 17, 2014  
**Laboratory Number:** 141506  
**Project Name:** PF Hermosa Monthly Sulfides

On June 9, 2014, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
PRODUCED WATER DIFFUSER	141506-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

 For.  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa Supervisor @-Orcutt  
Ruth Juris-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport McMoRan (PF Hermosa)  
CAS LAB NO: 141506  
Analyzed By: AN

Date Sampled: 06/06/14  
Date Received: 06/09/14  
Date Analyzed: 06/16/14  
Sample Matrix: Water

#### DISSOLVED SULFIDE EPA METHOD 4500S<sup>-2</sup>F

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141506-01	Produced Water Diffuser	90	1	0.04	0.2

#### QUALITY CONTROL DATA

141506-MB	Method Blank	ND	1	0.04	0.2
-----------	--------------	----	---	------	-----

mg/L: Milligrams/Liter (ppm)  
DF: Dilution Factor

6/17

SUBMITTED TO: Capco Analytical

REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_

COPIES TO: Platform Supervisor  
201 S. Broadway  
Orcutt, CA 93455

FAX: \_\_\_\_\_  
PHONE: 644-4560  
PHONE: \_\_\_\_\_

cc: Ruth Juris

Comments: Final test = 100 20 drops = 100 ms/L

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport-McMoRan Oil & Gas  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry


**Report Date:** July 15, 2014  
**Laboratory Number:** 141799  
**Project Name:** PF Hermosa wk(2) weekly NPDES  
**Sampled by:** Client

On July 9, 2014, Capco Analytical Services, Inc.(CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNCIEL OUT	141799-01
UNICEL OUT	141799-02*
UNICEL OUT	141799-03*
UNICEL OUT	141799-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
\_\_\_\_\_  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date Sampled: 07/08/14  
CAS LAB NO: 141799 Date Received: 07/09/14  
Analyst: GM Date Analyzed: 07/14/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141799-01	Unicel Out	8.1	1	1	5

### QUALITY CONTROL DATA

141799-MB	Method Blank	ND	1	1	5
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741799

FACILITY: Hermosa wk (2) NPDES  
COLLECTOR: LTS  
PROJECT/CHARGE # Weekly NPDES  
RESULTS REQUIRED: Normal  
RESULTS BY: PHONE: FAX:

SUBMITTED TO: Capco Analytical Services  
REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway, PHONE: \_\_\_\_\_  
Orcutt, CA 93455  
Ruth Juris 7/16 7/17

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unice/art	grab	1	Date: 7-8-14 Time: 2000	HCl	EPA 1664 Abs (9) IR (10)
2		grab	1	2015		
3		grab	1	2030		
4		grab	1	2045		
						Field notes
						620 ppm (Sulfides) 19.5 k HAs

Comments: Run #1 Held sent

**Comments:** Run #1. Hold rest.

Relinquished by: [Signature] Date: 7-9-14  
Received by: [Signature] Time: 1310

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_





Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport-McMoRan Oil & Gas  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** July 24, 2014  
**Laboratory Number:** 141876  
**Project Name:** PF Hermosa Produced Water NPDES Weekly  
**Sampled by:** Client

On July 18, 2014, Capco Analytical Services, Inc. (CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
PRODUCED WATER	141876-01
PRODUCED WATER	141876-02*
PRODUCED WATER	141876-03*
PRODUCED WATER	141876-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date Sampled: 07/16/14  
CAS LAB NO: 141876 Date Received: 07/18/14  
Analyst: GM Date Analyzed: 07/21/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141876-01	Produced Water	7.8	1	1	5

### QUALITY CONTROL DATA

141876-MB	Method Blank	ND	1	1	5
-----------	--------------	----	---	---	---

**LTS ENVIRONMENTAL, INC.**  
**704 Adirondack Avenue**  
**Ventura, CA 93003**  
**805-644-4560**

**Report to: FM O&G c/o Steve Lawry**

**Bill to:** FM O&G

Accounts Payable  
700 Milam Ste 3100  
Houston, TX, 77002

7/25  
7/28

**FACILITY:**

COLLECTOR:

PROJECT/CHARGE #

**RESULTS REQUIRED:**

RESULTS BY: PHONE:

Pl. Horns

**LTS**

NPDES Produced Water Weekly

## Standard

**FAX:**

SUBMITTED TO:

REPORT TO:

**COPIES TO:**

## Platform Supervisor

**201 S. Broadway**

Orcutt, CA 93455

## Capco Analytical

**PHONE:**

FAX:

**PHONE:**

**644-4560**

PHONE:

cc: Ruth Juris

[illegible]

Comments: Run #1; Hold 2-4

$$Abv = 0.7 \quad (4120 + 6)$$

Relinquished by:

Received by:

Date: 7/18/14

Time: 4:15

Retinquished by:

Received by:

Date:

Time:

Relinquished by:

Received by:

Date:

Time:

Relinquished by:

Received by:

Date:

Time:



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport-McMoRan Oil & Gas  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** July 31, 2014  
**Laboratory Number:** 141913  
**Project Name:** PF Hermosa Weekly NPDES  
**Sampled by:** Client

On July 24, 2014, Capco Analytical Services, Inc. (CAS), received four (4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141913-01
UNICEL OUT	141913-02*
UNICEL OUT	141913-03*
UNICEL OUT	141913-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**CERTIFICATE OF ANALYSIS**

Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date Sampled: 07/23/14  
CAS LAB NO: 141913 Date Received: 07/24/14  
Analyst: GM Date Analyzed: 07/30/14  
Sample Matrix: Water

**OIL & GREASE ANALYSIS  
EPA METHOD 1664**

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141913-01	Unicel Out	7.2	1	1	5

**QUALITY CONTROL DATA**

141913-MB	Method Blank	ND	1	1	5
-----------	--------------	----	---	---	---

174 1913

SUBMITTED TO: Capco Analytical Services 81  
REPORT TO: \_\_\_\_\_  
COPIES TO: Platform Supervisor PHONE: \_\_\_\_\_  
201 S. Broadway PHONE: 644-4560  
Orcutt, CA 93455 PHONE: \_\_\_\_\_  
Ruth Juris

Comments: Run #1. Hold rest.

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport-McMoRan Oil & Gas  
C/O: LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** July 11, 2014  
**Laboratory Number:** 141800  
**Project Name:** PF Hermosa, Monthly NPDES Produced Water Monitoring  
**Sampled By:** Client

On July 9, 2014, Capco Analytical Services, Inc. (CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:


SAMPLE DESCRIPTION

CAS LAB NUMBER ID

OCEAN WATER @FIRE WATER PUMPS

141800-01

By my signature below, I certify that the results contained in this laboratory report, comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa Supervisor  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

CERTIFICATE OF ANALYSIS

Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date Sampled: 07/09/14  
CAS LAB NO: 141800 Date Received: 07/09/14  
Analyst: AN Date Analyzed: 07/09/14  
Sample Matrix: Water

SPECIFIC CONDUCTIVITY  
EPA Method 120.1

CAS LAB #	Sample ID	RESULTS ( $\mu\text{S}/\text{cm}$ )	DF	PQL ( $\mu\text{S}/\text{cm}$ )
141800-01	Ocean Water @-Fire Water Pumps	51500	1	1



141800

**LTS Environmental, Inc.**  
**704 Adirondack Avenue**  
**Ventura, CA 93003**  
**805-644-4560**

**Report to:** Freeport McMoRan O&G  
 c/o LTS, 704 Adirondack Ave  
 Ventura, CA 93003

**Bill to:** Freeport McMoRan O&G  
 700 Milam, Ste. 3100  
 Houston, Tx 77002

**FACILITY:** Platform Hermosa  
**COLLECTOR:** LTS /  
**PROJECT/CHARGE #** Monthly NPDES Produced Water Monitoring  
**RESULTS REQUIRED:** normal  
**RESULTS BY: PHONE:** \_\_\_\_\_ **FAX:** \_\_\_\_\_

**SUBMITTED TO:** Capco Analytical Services  
**REPORT TO:** S.G. Lawry @ LTS **PHONE:** 644-4560  
**COPIES TO:** Platform Supervisor (201 S Broadway, Orcutt)  
 Ruth Juris (email) **PHONE:** \_\_\_\_\_

7/16 7/17

SAMPLE NO.	SAMPLE ID	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	Ocean Water @ Fire Water pumps	grab	1	7-7-14 500	Ice	Conductivity

Comments:

**Capco: Please report MDLs and PQLs on lab report**  
 Dissolved Sulfides collected the previous week.

Relinquished by:  Date: 7-9-14  
 Received by:  Time: 1310

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport-McMoRan Oil & Gas  
C/O: LTS Environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

**Report Date:** July 9, 2014

**Laboratory Number:** 141728

**Project Name:** PF Hermosa, Monthly NPDES Produced Water Monitoring

**Sampled By:** Client

On July 3, 2014, Capco Analytical Services, Inc. (CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:


SAMPLE DESCRIPTION

CAS LAB NUMBER ID

NPDES PROD. WATER

141728-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
\_\_\_\_\_  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa Supervisor  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

This report shall not be reproduced except in full without the written approval of CAS. The test results reported represent only the item being tested and may not represent the entire material from which the sample was taken.



Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
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### CERTIFICATE OF ANALYSIS

Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date Sampled: 07/02/14  
CAS LAB NO: 141728 Date Received: 07/03/14  
Analyzed By: AN Date Analyzed: 07/08/14  
Sample Matrix: Water

#### DISSOLVED SULFIDE EPA METHOD 4500S<sup>-2</sup>F

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141728-01	NPDES Produced Water	140	1	0.04	0.2

#### QUALITY CONTROL DATA

141728-MB	Method Blank	ND	1	0.04	0.2
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mg/L: Milligrams/Liter (ppm)  
DF: Dilution Factor

141728

**LTS Environmental, Inc.**  
**704 Adirondack Avenue**  
**Ventura, CA 93003**  
**805-644-4560**

**Report to:** Freeport McMoRan O&G  
 c/o LTS, 704 Adirondack Ave  
 Ventura, CA 93003

**Bill to:** Freeport McMoRan O&G  
 700 Milam, Ste. 3100  
 Houston, Tx 77002

**FACILITY:** Platform Hermosa  
**COLLECTOR:** LTS /  
**PROJECT/CHARGE #** Monthly NPDES Produced Water Monitoring  
**RESULTS REQUIRED:** normal  
**RESULTS BY: PHONE:** \_\_\_\_\_ **FAX:** \_\_\_\_\_

**SUBMITTED TO:** Capco Analytical Services  
**REPORT TO:** S.G. Lawry @ LTS **PHONE:** 644-4560  
**COPIES TO:** Platform Supervisor (201 S Broadway, Orcutt)  
 Ruth Juris (email) **PHONE:** \_\_\_\_\_

7/10 7/11

SAMPLE NO.	SAMPLE ID	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod. Water	grab	500 mL plastic	7-2-14 400	NaOH-Zn	<b>Dissolved Sulfides</b> (Method SM4500S-2F) MDL: 20 ug/L (Dissolved sulfides were preserved & filtered in the field prior to submittal)
	<del>Capco Analytical Services</del>	<del>grab</del>		<del>7-2-14</del>	<del>NaOH-Zn</del>	<del>Conductivity</del> <del>25/</del>

Comments:

**Capco: Please report MDLs and PQLs on lab report**

Relinquished by:  Date: 7-3-14  
 Received by: \_\_\_\_\_ Time: 1235

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_



Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

**Prepared for:** Freeport-McMoRan Oil & Gas  
C/O: LTS environmental, Inc.  
704 Adirondack Avenue  
Ventura, CA 93003  
Attn: Steve Lawry

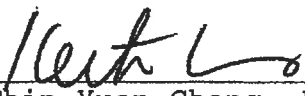
**Report Date:** August 1, 2014  
**Laboratory Number:** 141959  
**Project Name:** PF Hermosa Weekly NPDES  
**Sampled by:** Client

On July 30, 2014, Capco Analytical Services, Inc. (CAS), received four(4) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

<u>SAMPLE DESCRIPTION</u>	<u>CAS LAB NUMBER ID</u>
UNICEL OUT	141959-01
UNICEL OUT	141959-02*
UNICEL OUT	141959-03*
UNICEL OUT	141959-04*

\*HOLD PER CUSTOMER'S REQUEST

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

  
\_\_\_\_\_  
Keith Chin-Yuan Chang, Ph.D.  
Director - Analytical Operations

cc: PF Hermosa @-Orcutt  
Ruth Juris @-EDT

If you have any further questions or concerns, please contact me at your convenience. This report consists of 1 page excluding the cover letter and the Chain of Custody.

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994  
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

### CERTIFICATE OF ANALYSIS

Client: Freeport-McMoRan Oil & Gas (PF Hermosa) Date Sampled: 07/29/14  
CAS LAB NO: 141959 Date Received: 07/30/14  
Analyst: GM Date Analyzed: 07/31/14  
Sample Matrix: Water

### OIL & GREASE ANALYSIS EPA METHOD 1664

CAS LAB #	Sample ID	RESULTS (mg/L)	DF	MDL (mg/L)	PQL (mg/L)
141959-01	Unicel Out	8.5	1	1	5

### QUALITY CONTROL DATA

141959-MB	Method Blank	ND	1	1	5
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## Chain of Custody

141959

<b>LTS Environmental, Inc.</b> <b>704 Adirondack Avenue</b> <b>Ventura, CA 93003</b> <b>805-644-4560</b>	<b>Report to FM O&amp;G s c/o S. Lawry</b>	<b>Bill to: Accounts Payable</b> <b>700 Milam Ste 3100</b> <b>Houston, TX, 77002</b>
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FACILITY: Hermosa  
 COLLECTOR: LTS  
 PROJECT/CHARGE #: Weekly NPDES  
 RESULTS REQUIRED: Normal  
 RESULTS BY: PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

SUBMITTED TO: Capco Analytical Services  
 REPORT TO: \_\_\_\_\_ PHONE: \_\_\_\_\_  
 COPIES TO: Platform Supervisor PHONE: 644-4560  
201 S. Broadway,  
Orcutt, CA 93455  
Ruth Juris

8/6 8/7

SAMPLE NO.	SAMPLE ID/LOCATION	GRAB/COMP.	VOLUME	DATE/TIME COLLECTED	Pre-serv	ANALYSES REQUESTED (METHOD)
1	Unicel out	grab	1	Date: 7-29-14 Time: 1415	HCI	EPA 1664 Abs (13) IR (14)
2		grab	1	1430		
3		grab	1	1445		
4		grab	1	1500		
						Field notes
						33k H2S.

Comments: Run #1. Hold rest.

Relinquished by: [Signature] Date: 7-30-14  
 Received by: \_\_\_\_\_ Time: 1115

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Time: \_\_\_\_\_